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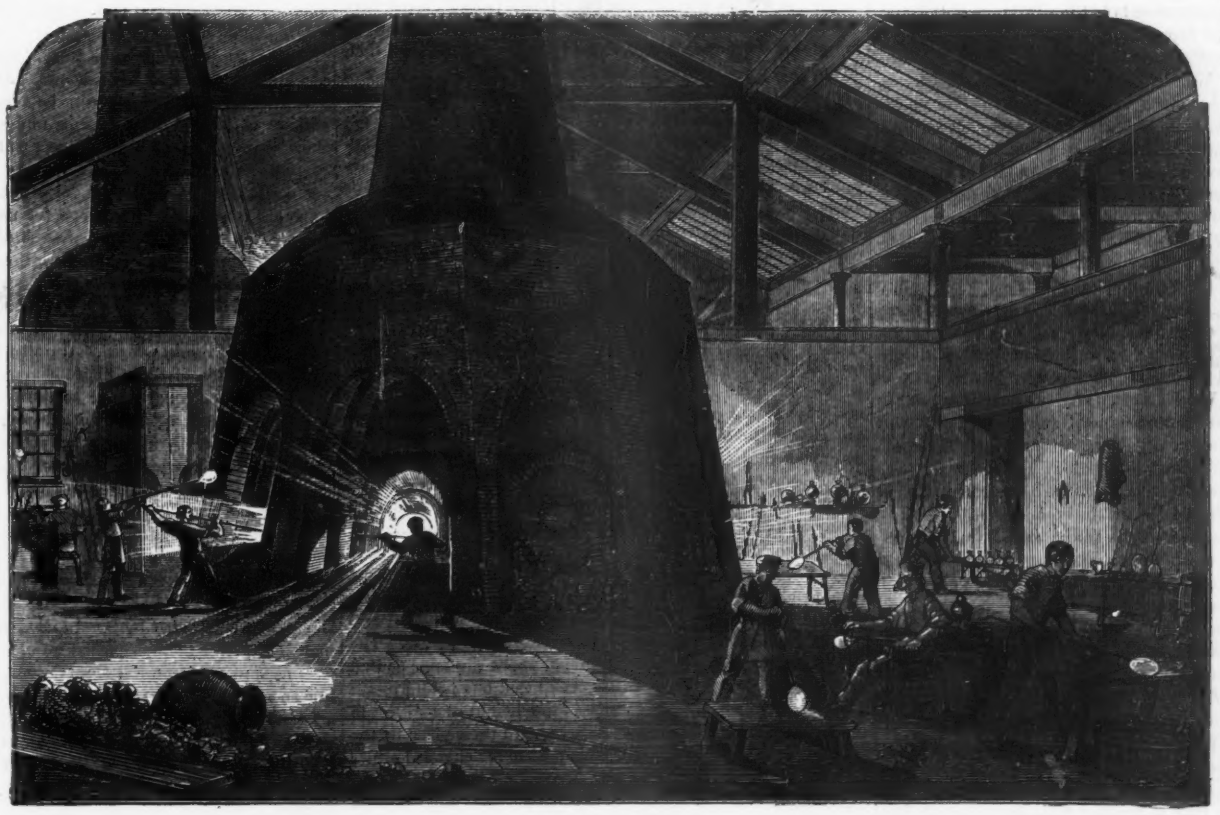
Glass-Making.

THE manufacture of plate glass, rough polished or silvered, is an industry not yet fully established in this country, but one which deserves the attention of American capitalists. We do indeed produce an inferior article; but we are obliged to hear "French plate" alluded to as something far better; and yet we possess in abundance raw materials of the best quality for the manufacture. The importations of polished plate into New York for the ten years ending January 1, 1869, exceed six million cubic feet, while the quantity of rough plate imported during the same period is probably at least half as great. The silvering of the polished plates is generally done here, by the agents of the united foreign glass companies, as silvered plates are liable to be damaged in crossing the ocean. A year or two ago, there were sixteen large foreign establishments engaged in this business, of which there were, in France, six; in England, six; in Germany, two; in Belgium, two. The aggregate capital of these works amounted to about fifty millions of dollars, and the annual production to nearly thirteen millions of square feet. The average cost of production varied between 48 and 54 cents gold per square foot; the average selling-price in Paris was about 67 cents gold, leaving a handsome margin of profit, aside from that which is realized from the silvering of the plates. The profits upon exportation to countries where no such establishments exist are much greater.



GLASS MAKING.

The accompanying illustration shows the interior of a glass-house, with the furnace in operation. The details of the process are outwardly simple, but demand a high degree of skill on the part of the workmen, in the various operations of smelting, casting, grinding, washing, and polishing.

Underground Temperature—Interesting Experiments.

THE London *Daily News* says: "On the verge of a hayfield half a mile below Highgate Hill, Mr. G. J. Symons, the celebrated authority on rain and rainfall, is engaged in a series of interesting scientific experiments, with the object of obtaining some reliable data relative to the temperature of the earth at great depths. A rare opportunity, arising out of the failure of other experimentalists, enabled Mr. Symons to begin with the preliminary difficulties already overcome. When Hampstead was one of a series of pleasant villages (in the days of Henry VIII.,) the Hampstead Water-works Company was formed. The supply of water of course in time grew unequal to the demand, and a new well was sunk into the chalk to the depth of between 500 and 600 feet. Again the demand exceeded the supply; and the company, taking the professional advice tendered to them by a number of geologists, sunk an Artesian bore through the centre of their well to the depth of a quarter of a mile. If there is one stratum where more than another geologists expect to find water in abundance, it is in the lower greensand. Into this the water-works company bored in 1853; they reached the depth of 1,302 feet, sunk nearly £8,000 in two years, found, strange to say, no lower greensand, and, unfortunately, no water, and became ruined. The section of the boring shows sixty-eight different strata. The last layers are an eight-feet depth of red sandstone, micaceous and quartzose; a two-feet depth of light clayey sand, with small angular fragments of chert or flint; and a six-feet depth of whitish and greenish hard sandstone. The property passed eventually into the hands of the New River Company, who kindly and most liberally at once accorded to Mr. Symons the permission he sought, to conduct a series of thermometric experiments on the abandoned site. There was the original well 540 feet deep, covered with loose planks, and with upper lining more or less injured. To a man bent upon scientific research as a pure labor of love, this was no obstacle, and Mr. Symons soon erected a hut over the well, found a bore tube that had led to the ruin of the ancient company plugged and locked ten feet below the level of the ground, and fitted up his snug little observing-house with self-designed apparatus of the most perfect kind. Our scientific readers will remember that at the British Association meeting at Dundee a committee was appointed to investigate the temperature of the earth at great depths. Mr. Symons is a member of that committee; also Sir W. Thompson, who moved for its appointment. The latter gentleman is, indeed, its chairman, and he is known to have much interest in the general question out of which these experiments arise, inasmuch as upon its solution hang certain matters of contention between Sir William and Professor Huxley, as to how far underground temperature may be made to test the age of the world. Mr. Symons' experiments are not yet concluded. He has made them week by week since January, and the results so far he regards as at any rate decisive. He has made gradual observations down to a depth of 1,100 feet, and has ascertained that the temperature there is twenty degrees higher than above ground; that is to say, the thermometer showed seventy degrees, whereas the mean temperature of London is fifty degrees. If this rate of increase continues, as there seems no reason to doubt would be the case, boiling point (210 degrees) would be reached about a mile and a half down. At present, however, Mr. Symons is at a standstill; he has literally stuck in the mud. About 200 feet of blue-black deposit has accumulated at the bottom of the tube, and into this the thermometers cannot penetrate. There is nothing for it but the removal of the mud, and it would be a pity if these experiments were suddenly stopped before their legitimate conclusions had been wrought out for the lack of some £30 or £40. Of course the learned society under whose auspices the work is being prosecuted will forbid such an ignominious termination of a valuable investigation, the like of which has never before been attempted. Mr. Symons' registering and lowering apparatus is of the rarest kind, much of it having been specially made. The chief difficulty generally experienced in conducting observations at great depths, particularly with regard to water, is the squeezing which the thermometers suffer from hydraulic pressure. In this case the difficulty is met by having a thermometer enclosed in a stout glass cylinder, the almost amazing strength of which may be imagined from the fact that it has been tested under a pressure of three tons to the square inch."

Manufacture of Iron and Steel.

MR. EDWIN FOX, of Sheffield, ironmaster, proposes certain improvements applicable to the manufacture of steel and iron worked in puddling-furnaces, the object being to enable the puddler to make malleable metal of a steely nature, to work common pig-iron, such as could not be hitherto worked, in consequence of phosphorus, sulphur, and other impurities contained therein, and to utilize wrought and cast iron or pig metal melted, and afterwards used in a puddling furnace, for the purpose of puddling pig metal of a cheaper quality than previously used. The invention consists in melting and refineing, in an ordinary cupola or otherwise, any or all descriptions of cast and wrought iron, scrap or pig metal, or certain quantities of each, and, when melted, in running it into pigs; or it may be used in the molten state, to be worked in the puddling-furnace in such proportions as may be found desirable for the production of various descriptions of iron and steel.

The Great Storm.

THE heavy rains of October 2 and 3, while they served the metropolis well in replenishing its well-nigh exhausted water supply, caused no little damage in the country, and we regret to learn that this damage was particularly severe in the mining districts of Pennsylvania. In the Lehigh Valley the flood rose twenty-feet above low-water mark, and within fifteen inches of the high-water mark of 1862. That portion of Bethlehem between the Lehigh river and Monocacy creek was under water on the 5th. The Pennsylvania House and Felter's Hotel are very much damaged. The bridges at this point have sustained but little damage, though an immense amount of valuable lumber was swept away.

The water entered the Bethelehem Iron Works, and the furnaces at Allentown. The Crane Iron Works at Catasauqua were inundated, and the loss is very great. Weissport was completely inundated. The beautiful iron bridge opposite the Mansion House at Mauch Chunk was swept down the stream. At 9 A. M., thirty-seven barges went over the dam at that point, and all are a complete wreck. Broadway there was entirely under water, and several houses were washed into the stream. The booms at White Haven were all washed away, and great rafts of timber carried down. The loss to lumbermen at White Haven is very heavy. The Lehigh Valley Railroad at Catasauqua was washed away.

The Lehigh and Susquehanna Railroad sustained the heaviest damages, the track being washed away at many points between White Haven and Bethlehem. The canal was washed away east of the town, and the loss is great. Telegraphic communication was all destroyed north of Catasauqua.

None of the lateral roads near Pottsville were seriously damaged, except the Little Schuylkill between Port Clinton

and Tamaqua, where six bridges were swept off and the track badly damaged. Three weeks will be required to repair the damage, and coal transportation over it will be suspended for that time. The canal is not badly injured. Three small breaks were repaired in three days, at a cost of $300. Many of the collieries were drowned out. All the mules in Repplier's mines at Newcastle were drowned. The Philadelphia and Reading Railroad was slightly washed. The Lebanon Valley Railroad was uninjured.

The bridge below Emaus, on the East Pennsylvania road, was washed away, but restored by the 6th, reopening travel from Reading to Allentown. The Philadelphia and Baltimore Railroad was under water for several days, but the track suffered no serious injury, and trains are now running, as is also the case, we believe, with all the other railroads damaged, except the Lehigh and Susquehanna, which it will require considerable time to repair.

The flood in the Schuylkill caused considerable inconvenience and loss in Philadelphia, and many of the wharves along the Delaware river front of that city were also submerged. The Market street gas-works were crippled for awhile, and the Point Breeze works came to the rescue of the benighted town. T steam fire engines were employed in pumping out flooded cellars, and the firemen enjoyed the novel recreation of putting out water instead of fire.

American Institute---The Machinery Department.

THE machinery in motion always forms an attractive part of an industrial exhibition, and nowhere is this more strikingly illustrated than at the fairs of the American Institute. The department devoted to machinery at the present Fair is tabulated as Department V., and comprises objects of much variety, characterized, however, rather by working excellence than by originality. We do not greatly regret the result, as evinced by this year's exhibition ; for there is generally a strong tendency on the part of inventors (particularly in mechanics) to strain at novelty for novelty's sake, and to produce that which, although it might excite admiration for its ingenuity, would fall short of the demands of practice. After all, the great end to be sought for in such exhibitions is to teach the masses, and display economical improvements to the advantage of the commercial investor. The department which is the subject of our notice is under the control of the following gentlemen: Messrs. William H. Butler, Walter Shriver, and James R. Taylor, whose management has been very successful in spite of the limited space assigned to them. The department is subdivided into seven groups. The space devoted to it is comprised in a shed, an extension of the eastern end of the main building to some seventy-five feet in all. This has necessitated the disposition of the objects exhibited more with regard to their bulk than to their character. The shafting and countershafting is fitted up in a workmanlike manner, and the machinery runs with ease. The Road Steam Company's safety steam boiler generates the steam which is supplied to these powerful horizontal engines—namely, a Corliss engine, by William A. Harris, of Providence ; an engine fitted with the Rider cut-off, erected by the Delameter Iron Works of New York, and a Babcock, Wilcox & Co.'s engine of superior action. Group one comprises steam machinery, and the first object of importance is the above-mentioned Corliss engine. This engine is of eighty horse-power, with a stroke of forty-two inches, and a diameter of cylinder of sixteen inches. Fifty strokes per minute has been attained with this engine.

We will make no comments upon the "Corliss" variable cut-off valve gear. So much has been said of the perfection of this invention, that nothing is left to be added. We noticed an addition to this engine resembling an arrangement not uncommon in France. It consists of a simple arrangement or *stop* affixed to the steam valve attachments, whereby the danger is prevented of the engine over-running itself, if the governor accidentally gets out of order. This engine is turned out in a workmanlike and highly finished style. The Delameter Iron Works sustain their reputation by the exhibition of their horizontal forty-horse engine. It has a thirty-six inch stroke, and is fitted with a fourteen inch cylinder. The chief characteristic of this engine is, that it is fitted with the very efficient cut-off invented by Mr. A. K. Rider. The cut-off valves in this case are applied to the back of the main valves, and are fitted with cylindrical segments working in concaved seats. The eccentric which works them, is wholly detached from that which works the main valves. The spindle to which the connection is affixed, besides imparting the ordinary motion, has a motion of itself, influenced by the governor. Towards the face of the steam parts, the openings are oblique, and the cut-off valves are arranged in like manner. This confers an extreme nicety of action upon the operation of the governor. The workmanship of this engine is also worthy of attention. The next engine of importance (that of Babcock and Wilcox) has much in common with the two just described. It is fitted with one of the maker's own cut-offs, and is a most practical and economical engine.

W. D. Andrews & Brother, 414 Water street, New York, exhibit a steam hoist with grooved wheel gearing, of which we much approve. The Novelty Iron Works exhibit an engine which is in motion so far that it is gradually being moved to its bed, and will probably be in running order in a day or two. Roper's caloric engine is exhibited. It bears a strong resemblance to that of Shaw's. These engines make a very good appearance, and in certain kinds of practice may be effective, but the general results attained by them have shown no economy We fear that as yet they will be limited to driving hair-brushing machinery, etc. We observed a compact portable engine exhibited by the Watertown Steam Engine Company of Watertown, New York. It has an improved boiler, and the cylinder is partially enclosed within it—a plan which, in perpendicular eight-horse engines, is very effective. Root's safety boiler exhibited by the Root Steam Engine Company of Twenty-eighth street and Second avenue, New York, although it bears a formidable aspect, can be examined with safety, even when its steam-gauge shows a pressure of four hundred pounds !

The prominent difference of construction between this boiler and the ordinary boiler consists in the fact, that no large shell is used, but a series of parallel tubes of wrought iron, set on an incline of about two inches to the foot, from the front, back. Or, in the language of the inventor, the essential features of this boiler are "the small diameters of its parts, and the subdivision of the water and steam in small compartments." The Root boiler certainly possesses the essential characteristics of safety, while it is easily transported and repaired, and is capable of generating steam of very high pressure with great rapidity. We now pass to group two, including all classes of pumps, hydraulic, and atmospheric machinery. W. D. Andrews and Brother exhibit their large centrifugal pump, worked by a pair of compact oscillating engines. This pump is characterised by the great reqnisites of durability, absence of complication, and direct action. Their smaller specimen, which they term a "central discharge" pump, is a useful form of the class of centrifugal pumps. Their large pump raised the steamer New Haven by pumping twenty-five thousand gallons of water per minute from her hold. This, continued for fifteen minutes, constitutes an immense duty. The Double-acting Steam Pump of Charles B. Hardick, of the Niagara Steam Pump Works, Brooklyn, is peculiarly adapted to mining purposes. The valves employed in this pump enable it to start at any point of the stroke, without the use of a starting bar, or a fly wheel.

The improved Mining and Wrecking Pump of F. Rowland, of the Continental Works, Greenpoint, L. I., is distinguished by the facility with which the pump wheel can be withdrawn from its case, so that all the works may be exposed for the removal of obstructions, if necessary. According to a report of General G. W. Cullum, of the United States Engineer Corps, the power of this pump is so great, that bricks, cannon balls, roots, bits of wreck, parts of piles, concreted sand and shells, and even a boat grapnel weighing thirty pounds, have been readily pumped from the depth of twelve feet. Gericke exhibits his Turbinate Force Pump, Blake & Company their steam pumps. The products of both of these firms are well known to the mechanical world. The Woodward Steam Pump Manufacturing Company exhibit their steam pumps and fire engines. The pistons of these pumps are fitted up with metallic packing, which is so contrived that change of temperature produces absolutely no effect upon them ; they are thus adapted for pumping hot liquids, as well as cold, and therefore of great value in chemical establishments. No. 3 will discharge from sixty to seventy-five gallons of water per minute, and if worked up to its highest speed, would accomplish still more. We are informed that in case of fire, by simply opening a valve connected with the discharge outlet, a powerful stream of water can be brought to bear upon any part of a building. Consequently no time is lost in sending for a fire engine, or in raising an alarm. Knowles' Patent Steam Pump is a very elegant contrivance. It is highly recommended as a fire engine, and we believe, very generally adopted by the manufacturing companies in New England. It is also especially recommended by the Chief Engineer of the United States Navy for use at the Navy Yards and on board of steamers. Philip S. Justice, of Philadelphia, (agency 42 Cliff street, New York) exhibits his Anti-Friction Steam Pump, which is of very peculiar construction indeed. It has no piston, no piston rods, no bored cylinder, or rather no cylinder at all, no condenser or air-pump, no friction or packing of piston and piston-rod, and consequently no need of lubricating. The stroke is from five to ten per minute, or about the same as that of the Cornish Pump. It is calculated that one pound power pressure of steam will force water to the height of two feet in the outlet pipe. All the valves are kept in their place by the pressure of steam or water, till their position is changed either by a change in the pressure or by an automatic adjustment.

Among the smaller contrivances for raising water, we noticed Gruber's pneumatic apparatus, which is very effective indeed. It is especially of use where the water-supply of dwellings does not extend to the upper stories, and it dispenses with the tank which ordinarily is placed upon the roof. Harsen's positive steam pump, exhibited by Cole, stands in the out-building. It is in connection with a low-pressure boiler of from five to ten pounds pressure only. The pump is said to be capable of forcing water to a height of one hundred and twenty feet. It is of great utility for household purposes. The boiler itself is compact, and has been quite extensively introduced for heating the cars on many of our leading railways.

Quite near to this last-mentioned invention stands the steam hammer of Richard Dudgeon, of which an illustration has been given in the AMERICAN JOURNAL OF MINING of May 29, 1869. Hammers from this manufacturer are in use in works of the New Jersey Iron and Steel Company, at the works of Roach & Son, and Morgan Iron Works, New York ; Morris, Tasker & Co., Philadelphia ; Bay State Iron Works, Boston ; and at the United States Navy Yards in Washington, Brooklyn and Boston.

Sawing is, perhaps, one of the most purely mechanical of the various kinds of labor. The first saw was of course the simple straight plate, used for sawing logs. But in this, as well as in the departments of the arts, time has wrought great changes. We meet here the safety-band saw of J. T. Plass, which appears to be perfectly safe to the operator, while the saw itself is completely protected from injury. Beach's scroll-saw makes six thousand cutting inches per minute, and cuts wood from one to twelve inches thick. This saw, as well as the former, is easily taken out, and replaced. Messrs. Hoe & Company and the American Saw Company exhibit their circular saws with adjustable teeth, of Paris Exposition fame. The saws of this latter company are perforated at the circumference, and in that present a decided advantage over others. Their price is not higher than that of the first quality of old style saws. We notice, also, the new gummer and cross-cut saw of Hoe & Co., which is said to cut with an ease and rapidity hitherto unequalled. At the north-west corner of this department the visitor will find Krom's dry ore concentrator, an apparatus of great value to the mining world. The importance of any improvement in the concentration of ores does not require comment. Mr. Krom has devoted his attention to this subject for many years, and has now succeeded in constructing a first-class machine, which is in every respect worthy the careful examination of parties interested in mining. Concentration is here effected by means of air, the mechanical combinations being exceedingly simple, and the machines therefore correspondingly durable. The power of one man is sufficient to operate a machine that will concentrate about one ton per hour. While on the subject of mining, let us take a look at Burleigh's Pneumatic Rock Drill. This has been placed, perhaps, not quite properly in the large half, near one of the large looms. With the assistance of this drill, the same amount of rock may be removed in as many weeks as months would have been required by the old method, and this with a less number of workmen. The Burleigh Drill is adapted to all kinds of rock, drilling holes from one and a quarter to five and a half inches in diameter. It is either worked by steam or compressed air. For working in the shafts of mines or tunnels, air is employed, which is conducted to the drill by means of tubing. We understand that it is now in successful operation in New York, Chicago, in Hell Gate channel, Union Pacific, and Boston and Hartford Railroads ; also in deepening the beds of the Illinois and Michigan Canals, and Des Moines Rapids, and various other localities.

The Boston Mechanics' Fair.

THE Massachusetts Charitable Mechanics' Association are now holding their eleventh fair in Faneuil and Quincy Halls, Boston. As usual, the two buildings have been connected by a bridge, and while Faneuil Hall contains furniture, dry goods and all kinds of ornamental work, Quincy Hall is devoted to machinery, tools and instruments. Among the multitude of articles exhibited but few can be mentioned even by name, and we shall therefore confine our attention principally to those of interest from a scientific point of view. The display of philosophical instruments is very meagre, but contains some of Tollis' microscopes, also several of his telescopes, having a compound microscope for an eye-piece. Very high powers can thus be obtained with small instruments ; for instance, a power of one hundred, with a telescope less than a foot in length. A larger instrument with an aperture of five inches, and thirty-five inches focal length, is also shown. It bears a power of 180 diameters, and was used by Dr. Gould in observing the recent eclipse. Unfortunately the difficulties in the construction of these instruments render them as expensive as those of equal power of the common size. In an instrument for lighting gas by electricity, the same motion that turns the stopcock rubs together pieces of silk and vulcanite, and causes the spark thus generated to pass through the escaping gas. In another form of burner, a stopcock is introduced which cannot be entirely closed ; the gas is therefore not extinguished, but only turned down. It is said that when in this condition only about a cubic foot per week is consumed, and hence the expense is trifling. Several chronometers and a turret clock are exhibited by the Howard Watch Company ; some also by Bond & Co., of very beautiful workmanship. Near them is placed an electric chronograph, such as is used in astronomical observations. A pen draws a spiral line on a cylinder of paper, and receives, every alternate second, a lateral motion from an electro-magnet. The same effect is produced by depressing a finger-key like that used in telegraph offices. The time of an observation can in this way be recorded with far greater accuracy than by any other method.

A large number of photographs of the eclipse are shown by Messrs. Whipple and Black. Some taken by the former artist are enlarged to a diameter of eight inches, and show a large part of the corona. Mr. Black's camera was so arranged that he was enabled to take five pictures on each plate, and he thus obtained views at very short intervals of time. The time at which all the photographs were taken was recorded by a chronograph like that described above, and measurements of them give the time of contact of the disks of the sun and moon with greater accuracy than they can be obtained by the eye. Among other instruments may be mentioned the hygrodeik, for showing the amount of moisture present in the air, and the adder, a simple contrivance by which any one can add two columns of figures at a time with surprising rapidity. A press for printing chromo-lithographs has been set up, and the practical operation of this process is fully shown. Specimens of its work are hung by the side of the original oil painting, and an unskilled person finds some difficulty in distinguishing one from the other. Considerable attention is attracted by a machine for making tubes of tin, copper or other material. Strips of the required metal are fed in at one side of it, which are then bent around an iron bar, and a joint made by folds and pressure, so that they are water-tight. An application of them to speaking tubes is shown, in which by blowing in at one end, an index is thrown down at the other, and a bell rung, thus calling attention to the message about to be sent. As usual, an engine has been built in one of the alcoves, and power distributed, so that the machinery may be seen in motion.

Brückner's Process for Chloridizing Silver Ore.

THIS process has been successfully introduced into the silver districts of Colorado, and a large percentage of all the silver produced in that Territory during the last three years has been extracted by its use. An account of it will, therefore, we trust, be welcome to our readers. The process has lately been so much improved that it offers decided advantages over the old plan of roasting and reverberatory furnaces. The expenses for labor and fuel are thereby very considerably reduced, and the roasting is done to greater perfection, and in a shorter time, than in the reverberatory. One man can at a time attend to from six to eight of the furnaces by which the process is performed.

Brückner's furnace consists of a cylinder of boiler iron, lined in a durable way with strongly-braced brick-work, and made to revolve between a fire-box and a flue; from the fire-box the flame and air pass through a pipe into the cylinder, and from there, together with the gases produced in roasting, into the condensing chambers, from which the latter escapes through a smoke-stack.

A diaphragm made of cast-iron pipes is set at an angle of about fifteen degrees to the axis of revolution, and extends diagonally through nearly the whole length of the cylinder, for the purpose of moving the ore from end to end of said cylinder, thereby exposing it to the action of heat and atmospheric air in a very uniform manner, and performing mechanically the work of transferring the ore from the cooler parts (nearest to the flue) to the hotter (nearest to the fire-bridge), and *vice versa*, which labor, by the old process, has to be performed by hand once every hour.

As the partition does not pass through the whole length of the cylinder, the latter is provided at each end with several flanges, set at an angle of about forty-five degrees, for the purpose of conveying the ore within the reach of the said diaphragm.

The operation of the cylinder may be learned by any person in a few days, and is as follows: A charge of 3,000 lbs. of silver ore, and 150 to 300 lbs. of salt, is introduced through a manhole into the cylinder (the inside of which has previously been heated to red heat), the opening closed, some more fuel thrown into the fire-box, and the cylinder made to revolve at one-half to one revolution per minute. The fire in the fire-box is so regulated that after one hour's time the sulphur contained in the ore commences to burn. Then the fire is so regulated that the ore is kept all the time at a dark red heat, gradually increasing to red heat. Very little fuel (and in ores containing much sulphur no fuel at all) is required until most of the sulphur has been oxydized; but then some more fuel is added, in order to gradually increase the temperature of the ore pulp to an intense red heat. The pulp soon assumes a spongy, "woolly" consistency, in consequence of the mutual decomposition of the sulphates (formed in roasting) and salt (chloride of sodium) and of the chlorine gas being evolved; and after one hour's time, or as soon as a sample taken from the furnace evolves pure chlorine, and no sulphurous smell can be perceived any more, the chloridizing roasting is completed. Then the man-hole plate is removed, and while the cylinder is kept revolving the ore is made to drop through a grate into a screw conveyor, which conveys it through an iron trough, kept cool from the outside by water. By this mechanical contrivance, the formerly so expensive, tedious, and unhealthy process of cooling the ore on a large cooling floor is done away with, and is performed to perfection, and without any additional labor, within fifteen minutes' time, since the ore by this process is by machinery directly carried into the screen and the hopper ready for further treatment.

Besides the last-named improvements, the inventor has also made some additional improvements for the purpose of increasing the working capacity of the cylinders, and to prevent at the same time all losses resulting from fine particles of ore and volatile chlorides being carried off by the draft. It must be borne in mind that the greater the quantity of atmospheric air which comes into contact with the heated ore the quicker the roasting process is performed.

The arrangement consists in the use of a steam suction pipe set (in the direction of the draft) into the flue between the cylinders and the condensing chambers; said pipe being arranged in such a manner that the draft through the furnace is considerably increased, and all volatile matter condensed and collected at the bottom of the chambers provided for this purpose.

This furnace can be used for roasting any kind of refractory silver ore, also for desulphurizing auriferous pyrites previous to chlorination or smelting, for roasting ores of zinc, lead, copper, etc.; also for burning cement, and for the manufacture of soda from cryolite.

Particular pains have been taken to construct every part of the improved cylinder strong and solid, and in such a manner that all interruption of the working of the mill on account of any part of the cylinder getting out of order is avoided as much as possible. Parties wishing to erect roasting furnaces may find it to their advantage to examine into the actual working results of this furnace. For particulars, address the patentee, William Brückner, M. E., Georgetown, Colorado.

Street-Watering Salts.

THE Superintendent of Scavengering, Mr. Newman, C. E., has just issued his report to the Liverpool Health Committee, upon the trials made during the past season of Mr. Cooper's street-watering salts. The main thoroughfare along Lord, Church, and Bold streets, chiefly MacAdamized, is considered to have afforded as severe a test as possible from the heavy traffic over it during the hottest period of summer. It is stated in the report that the use of these salts has been entirely successful, and beyond comparison superior to plain water. In practical results two water-carts with the weak solution were found equal to seven under the old system upon the MacAdamized road; but in paved streets one may be expected to do the work of five where the traffic is only ordinary. Financially, nothwithstanding the saving of horses and carts, it appears that at the price of $20 per ton hitherto charged for the salts, that no economy can be effected; but then the supply has so far been in experimental quantities, and it should be stated that the patentee is now prepared to deliver in quantity at 40s. It is further considered that a reduction of seventy per cent. would be effected in water wasted in the streets, and that there is the collateral advantage of the surface of the roadways being maintained in superior condition, a saving of twenty per cent. in the cleansing being due to this effect. The system has also been tested in Greenock, and is reported upon equally favorably by Mr. Barr, C. E., the master of the works.—*Engineering.*

Titles in the Mineral Regions.

IT is stated in our telegraphic dispatches to-day, "that the claim of the Eureka Gold Mining Company to 1,664 feet running along the Eureka lode, including twenty acres of surface ground, situated in Grass Valley, California, has been finally allowed," etc. It will be well for the State when all of our mining interests shall pass into the hands of private individuals, for then there will be no question as to the right of taxation; and, besides, the sooner the timber throughout the mountainous regions of California shall be protected, the better it will be for the people.

Waste has been going on in the mines since 1849. There has been waste in working mines, waste on timber lands, and in fact waste in nearly everything throughout the mining region of California. There has even been wastefulness by erecting temporary buildings. Chinese have run over the placers, exhausting them of their gold, and with very little profit to the people. We wish to see every foot of land, not only that fit for farming purposes, but that in which there is a particle of gold, belong to individuals. When this comes about, the interior may be expected again to prosper.—*California Bulletin.*

Queries.

A. R. L., CORNWALL LANDING, N. Y.—Potter's clay is used very extensively at B. Kreischer's New York Fire Brick and Staten Island Clay Retort Works. The office address is 58 Goerck street, New York City. It is also largely used at the Salamander Works, Woodbridge, New Jersey; likewise, at the Works of Mr. Watson, Perth Amboy, New Jersey. You may, perhaps, effect a sale by putting yourself in communication with the parties referred to.

S. J. W., OF IOWA.—The only metals of which the latent heat of fusion has been determined are, according to Silliman's Physics (last edition, table in appendix), zinc, 50 units Fah.; silver, 33; tin, 26; bismuth, 22; lead, 9, and mercury, 5. According to Cook's Chemical Physics (page 556), they are (reduced to Fah. units), zinc, 494; tin, 497; bismuth, 550, and lead, 162. As neither of these authors give their authority, nor the special method by which their so widely disagreeing numbers are obtained, we cannot decide which are right; but the discrepancy is striking when we consider that they agree in this: that the latent heat of melting ice is 142°. According to Silliman, that of melting lead, for instance, is sixteen times smaller, and according to Cooke, more than four times larger than that of ice. These numbers, of course, all represent units of heat, and therefore may be considered as the number of pounds of water that could be raised 1° Fah. by the heat emitted at the instant of congelation of one pound of each of the metals named, without their undergoing any fall of temperature at their melting or congelation points, which are respectively: for zinc, 760°; silver, 1870°; tin, 455°; bismuth, 518°; lead, 630°; and mercury—40° Fah. In the latter numbers, fortunately, there is no such disagreement as in the former. The melting point of cast iron varies from 1700° to 2400° Fah., according to quality; its latent heat has, so far as we know, never been determined.

J. R. M., OF KANSAS.—The flow of water through a two-inch orifice, under a head of 25 feet, is found by the rule that the velocity of the jet will be equal to that of a body having fallen freely through a distance of 25 feet. This is, in conformity to the well-known rule of falling bodies, 40 feet, or 480 inches per second, which, multiplied into the area of the aperture, 3.14 inches, gives 1507 cubic inches, or nearly 60 pounds per second; or 3600 pounds per minute. In the instance above given, we have a head of 25 feet, equal to 25×3600, or 90,000 foot-pounds per minute, or $2\frac{3}{4}$ horse-power. This calculation, however, is incomplete, as the friction of the sides of the aperture causes the amount of water escaping, to be from $\frac{1}{4}$ to $\frac{1}{3}$ less than it would be without this resistance. Deducting this, we obtain nearly two horse-power. To utilize this to the greatest advantage, the turbine is undoubtedly the most economical contrivance, causing a loss of only 10 or 15 per cent. of the power employed, while common water-wheels cause a loss of from 20 to 50 per cent.

G. B. A., OF OHIO.—The best substance for making cotton cloth fire-proof is tungstate of soda. It is now-a-days extensively used in the manufacture of the clothes of ballet dancers and others exposed to dangers of this kind. Alum and phosphate of ammonia are only very imperfect protective agents.

H. B., OF TENN.—It takes, of course, more weight to pull down a balloon than it will carry up. If, for instance, it will carry up 400 pounds, their weight can not pull it down, as by the terms of the proposition it will be carried up. But the addition of, say 20 lbs. may balance its lifting capacity, and 5 or 10 lbs. more will probably cause it to come down. Therefore, if it will carry up 400 lbs., 430 lbs. may carry it down.

W., OF KEOKUK.—The heat rendered latent during the burning of coal into carbonic oxide or carbonic acid gas, is only a small portion of that produced by the combustion itself, and is of course obtained from it. We are not aware that any one has succeeded in determining the amount of heat that thus disappears; the heat obtained by the perfect combustion of one pound of coal to carbonic acid is 14,000 units, and by the imperfect combustion to carbonic oxide, nearly 7000 units. In the JOURNAL OF MINING for September 19th, 1868, you will find further information on this subject in an editorial article on the amount of heat produced by combustion. This article will also furnish replies to some of your other questions.

[CORRESPONDENTS are requested not to use aniline ink, as the least moisture causes it to spread. One letter lately received was, from this cause, almost unintelligible. The hand-writing of another received from Europe was so obliterated as to be utterly useless.]

MINING SUMMARY.

Nevada.

EXTRACT FROM THE SPEECH OF ADOLPH SUTRO, ON THE SUTRO TUNNEL AND THE BANK OF CALIFORNIA.

Delivered at Piper's Opera House, Virginia City, September 20, 1869.

* * * About ten years ago, Peter O'Reilly discovered the existence of silver on what is now known as the Comstock lode, the richest silver vein of which there is any record in ancient or modern history. Work, during that space of time, progressed rapidly, and where it was an easy task to extract the minerals from these mines in the beginning, it is now one of extreme difficulty. They have reached an average depth of probably 1,000 feet, and we find that nearly fifty steam engines are required to pump out the water and hoist the ore. The expenses of keeping so much machinery in motion is immense, and even at this present time, they absorb so much of the profits that it has already become unprofitable to work some of the mines.

It is not only the original cost of the machinery and the enormous consumption of fuel, in a country where no coal exists, but the constant additions, the wear and tear of engines, boilers, cables, cages, etc., etc., the vexatious delays by breaking down; the lengthening out of the pumps, pipes and rods; the excavations for and the construction of pump bobs; the engineers, firemen and other attendants required; in fact, the innumerable and constant expenses connected with the operation of extensive and heavy machinery, which has to be increased for every foot of descent, and which makes it only a question of time when these mines will have to be abandoned, no matter how rich the ore. In addition to all this, we find that the heat at the present depth, has so much increased that, notwithstanding the improved ventilating apparatus, the men can do but one-half the work which they could in a cool, healthy atmosphere, and the loss in consequence is more than a million of dollars per annum.

* * * The only remedy which presents itself, sure and certain in its operations, is the construction of the Sutro Tunnel. The day work is commenced on that tunnel, with a reasonable prospect of completing it, that day you give a new lease of life to this section of country! From that day on you instil new confidence into the future; from that day on your real estate and other property will once more assume a value, and people will no longer say to you, as nine out of ten do now, that they are going to leave the country in a few months.

Great tunnels have been constructed for centuries in all countries where mining is carried on intelligently, and they have accomplished precisely what we desire to accomplish here. I might give you instances of tunnels constructed, three or four times the length of the one proposed here, while they gave but one-sixth the depth; I might relate to you the magnificent results obtained from their completion; I might tell you of the enormous fortunes which were obtained thereby, and give you many other interesting particulars were it not for the want of time to-night.

The Sutro Tunnel, starting from a point near Carson River, will reach the Comstock lode in a distance of 20,178 feet and cut the same at a perpendicular depth of 1,922 feet, or a depth along the dip of the lode of 2,900 feet below the floor of the Gould & Curry Company's former office. In order to expedite the work, four shafts will be sunk on the tunnel route, from the bottom of which, at the proper depth of the tunnel level, drifts will be extended in each direction. After reaching the Comstock lode, the tunnel will be continued northerly along the lode to and beyond the Sierra Nevada mine, and southerly along the lode to and beyond American Flat.

A very elaborate report was made some time ago by R. G. Carlyle, Esq., an engineer of a high order of ability, on the details of construction and cost of the tunnel; his report covers about 200 foolscap pages, is full of illustrations, and in its details altogether a creditable and reliable work; his estimate gives the cost of the tunnel at about $100 in gold per foot, which probably, is somewhat below the mark, taking into consideration the unknown difficulties usually encountered in such extensive works; he estimates the time necessary to complete it at two and a half years.

The principal advantage this tunnel will create, as far as mining operations on the the Comstock lode are concerned, may be enumerated as follows:

First—All pumping machinery may be dispensed with as soon as the tunnel is completed, for the shafts now existing on the Comstock lode may at once be connected with the tunnel by boring, which is at the present time accomplished rapidly, and at small expense, thus draining off the water from the shafts and permitting their connection with the tunnel without delay.

Second—The moment this connection is accomplished the most perfect ventilation is insured—drawing off the fumes of powder like a chimney would 2,000 feet in height, cooling the atmosphere, giving health and vigor to the miners, and preserving the timbers.

Third—The mines may thereafter be opened by numerous stations or galleries to the whole depth of 2,900 feet, thus showing the different bodies of ore contained in the mines, exposing many millions of treasure to the eye and increasing their value in proportion.

Fourth—It will give a great impetus to the exploration of those mines, which have thus far been unproductive, particularly those north of the Gould & Curry mine, and those on American Flat, which, to a large extent, have been lying idle on account of the great burden of exploring an unproductive mine through perpendicular shafts.

Fifth—For the reasons already stated; the extraction of ore will be so much facilitated and stimulated, that the present production of twelve or sixteen millions of bullion may be increased to, or even be made to exceed fifty millions of dollars per annum.

Sixth—Not only the pumping engines may be dispensed with, but also those for hoisting; for after the shafts are connected, instead of hoisting the ore to the surface, and transporting it by means of wagons or railroad to the mills on Carson River, at an expense of at least three dollars per ton, it will fall down to the tunnel level by its own gravity, at no expense at all, while a railroad in the tunnel, but four miles in length, can deliver the ore at the mills on Carson River at an expense of twenty cents per ton.

Seventh—By this great saving in the extraction and transportation, and the abolishment of all steam hoisting and pumping engines, which now eat up all the profits, it will be made possible to take out the immense bodies of low grade ores assaying from $2 to $20 per ton, and which are known to exist on the Comstock lode, and which may be concentrated by means of the water, which the tunnel itself will furnish. Five hundred millions of dollars, at a low estimate, contained in this mountain, without the tunnel, will forever remain slumbering in the bowels of the earth, for the expenses of extraction, under the present system, are greater than the value they contain.

Eighth—After the completion of the tunnel the mines may, without

the use of steam engines, be worked to great depth below the level of the tunnel, by conducting through pipes the water which may be collected on the surface from melting snow and rains, together with that contained in the mines, to hydraulic engines, or turbines, placed at the bottom of the shafts at the tunnel level, thus using a portion of the very water which costs so much to pump out at present, as a most economical and useful motive power to propel pumps, which raise the water from great depths below and discharge it through the tunnel.

Professor Weissbach, the best living authority, gives the power furnished by fifty gallons of water per second at 1,800 horse-power, at a depth of 2,000 feet—more power than all the engines have now in operation upon the Comstock lode. It may safely be stated, therefore, that by means of the Sutro Tunnel, the Comstock lode may be profitably worked to a depth of at least 3,500 feet—a greater depth than has yet been reached in any mine in the world.

Ninth—Where only 2,000 men are now employed, at wages which may be cut down at any time, after the completion of the tunnel more than 10,000 would find profitable employment on the Comstock lode alone. The cost of mining would be so much reduced, that those mines which now barely pay expenses would be enabled to pay regular dividends, and allow liberal wages to the men employed.

Tenth—The construction of the tunnel, giving a future to this country, would enhance the value of all property, restore confidence and place the affairs of the people on a sound and solid basis.

While the tunnel would create a revolution in operations on the Comstock lode and secure the future of these mines for fifty or a hundred years to come, it will carry with it still more important results.

I now approach a subject which may properly be looked upon as the most important feature of this tunnel enterprise. I refer to the discovery and development of mines along the tunnel route, granted by Act of Congress to the extent of 4,000 feet in length on every lode discovered.

The proposed tunnel will penetrate to the very centre of this great silver-bearing mountain containing the Comstock lode, and traverse a county chiefly consisting of greenstone porphyry, a formation pronounced by Humboldt and others to be eminently productive of silver mines.

It is a fact well known to every miner, that many lodes exist which do not reach up to the surface, and which are usually discovered accidentally, while running drifts or tunnels for some other lode; in miners' parlance they are called "blind lodes," an expression derived from the fact that they are not visible at the surface. Upon these blind lodes the miner builds his hopes, they give him nerve and perseverance to follow his toilsome labors; their mysterious existence, the wealth which they are presumed to contain, and the uncertainty of their precise location, have a powerful bearing on the imagination of man, and are the levers which induce the undertaking of tasks by even single individuals from which they would otherwise shrink.

In a mineral bearing region, the hopes of discovering and opening valuable mines by running horizontal adits into a mountain are generally well founded; but nowhere on the face of the earth do we find a mountain range containing a vein as valuable as the Comstock lode, and a formation equally favorable for the existence of a series of mines. It is not only reasonable to suppose, but quite evident, that the immense convulsion which rent the earth in twain, and created the fissure which is known as the Comstock lode, at the same time must have cracked and opened the earth's crust in many other places. These are only theories, but they are theories believed and adopted by every common miner, and confirmed by experience. It may, therefore, safely be predicted, that the proposed tunnel, which will penetrate to the very bowels of Mount Davidson, will discover and open more treasure and wealth to the east and west of the Comstock lode than were ever before discovered by any work of this kind. Independently of the large revenue the Tunnel Company will derive from draining the Comstock lode; from the transportation of men, ore, rock and timber; independently of the great value of the company's land, and independently of any other consideration, the discovery and development of the mines contained in this argentiferous belt would justify the construction of this tunnel, simply as an exploring work; and for that purpose alone it should be looked upon as one of the best planned, legitimate and promising mining enterprises ever undertaken in any mining district.

And now, fellow-citizens, allow me to give you a short history of my struggles in connection with this tunnel project, and let me explain to you what causes have prevented its success thus far.

[Here follows an account of the preliminary State and Federal legislation on the subject.]

Thus fortified with the most valuable mining grant, the first one ever made by this Government to an individual, and provided with other privileges worth several millions of dollars per annum, I proceeded to New York, expecting to raise the requisite funds without any difficulty. The whole merits of the enterprise were fully set forth in a pamphlet published by me and submitted to the first and wealthiest men of that great metropolis, amongst whom were Commodore Vanderbilt, William B. Astor and many others, but in every instance, one obstacle presented itself, and that was, that if the statements made were correct, there could be no difficulty in so magnificent an undertaking to raise some of the funds, even if it be but a small portion of the sum required, at home, and I soon became convinced that this was the only true course to be pursued. I requested these gentlemen to express their views in a communication to me, which might be submitted to California and Nevada, and as a consequence they addressed to me the following letter:

"NEW YORK, October 5, 1866.

"A. SUTRO, Esq.—Dear Sir: We have carfully examined your project for a Draining and Mining Tunnel to the Comstock lode in the State of Nevada, and consider the same an enterprise which, in our opinion, when carried out, will prove of incalculable benefit to the mines on that lode, and at the same time be a source of large revenue to the parties undertaking it. We have taken some pains to ascertain what chances exist in this city to obtain the necessary capital, and have come to the conclusion, that you will find it a matter of serious difficulty to convince the people of New York at large of its value; the principal and, in our opinion, fatal objection to its success here at present being the fact, that no portion of the capital has been subscribed on your coast. If the mining companies on the Comstock lode, and the people of Nevada and California, who are familiar with the value of your mines, would evince their confidence in this enterprise, by subscribing a portion of the requisite capital, say $400,000 or $500,000, and work on the tunnel is actually commenced, we think you will find comparatively an easy task to obtain the balance of the funds here. We would consequently advise you not to lose any valuable time in futile attempts here or in Europe, where, no doubt, the same objections will be raised, but to return at once to San Francisco and use your efforts there to get the work started. Let some of the leading men on your coast, who are known here for their commercial standing and their integrity, form a preliminary Board of Directors, and you may then, while the tunnel is daily progressing, return to New York, we think, with confidence of success, and we shall use our best efforts to assist you in accomplishing your object. Your perseverance and the practical and able manner in which you have presented this laudable undertaking to the public deserves our commendations, and it shall be a source of gratification to us to see your labors crowned with success. We are, dear sir, respectfully yours."

[Signed by Belmont, Cooper, Kelly, Coleman, Duncan, Sherman & Co., Fremont, Garrison, Ogden, Barlow, and a large number of other prominent New York capitalists.]

It is evident that the persons who signed that letter, representing probably $100,000,000, looked upon the enterprise as too magnificent altogether, which created the suspicion that something was behind the scenes, and they naturally wanted a substantial indorsement out here. So in August, 1866, I concluded to return to San Francisco, in order to follow out the suggestions made in the aforesaid letter, and submitted the matter to the mining companies and to many of the principal merchants of San Francisco.

While this question was under consideration, the Legislature of Nevada, which was then in session, passed a memorial and resolutions, asking Congress to loan its credit to this important work, in case sufficient capital could not be secured from private sources, and in a lengthy report set forth its reasons why the nation should feel a a deep interest in its execution.

The question as to subscriptions to the Tunnel Company by the mining companies had in the meantime been fully discussed in San Francisco; and after some delay a number of companies agreed to and did subscribe through their trustees sums aggregating together, with subscriptions from private persons, about $600,000, and there was every prospect of seeing them increased in a few weeks to $1,000,000 or more in San Francisco alone. But now commenced the tug of war, at the very moment when I was on the full road to success, when everybody commenced to look upon the whole affair as quite sure of being consummated, and when I myself was led to think that my struggles were about over, they only fairly commenced.

It was at that time that the California Bank ring stepped in, and in high conclave and in secret session concluded that it was high time to break me up, (for my efforts were about to be crowned with success,) substitute themselves into my place, reap the fruits of my labors, and by their influence over the politicians of this coast obtain the aid of Congress, which the Legislature of Nevada had applied for.

* * * I concluded to give up the field, for the time being, to my opponents, return to New York and go over to Europe if necessary, and see what could be accomplished there. In July, 1867, I arrived at the former place, but soon found, that after my apparent failure to raise any funds in California, it was useless to waste my time there. Evidences that the war the Bank of California had commenced to wage against me on the Pacific coast, should also extend to New York, came under my observation.

* * * It almost appeared to me after this, that the only place where I could vindicate myself, and where the importance and magnitude of the proposed work would be properly appreciated, and where, at the same time, the bank would have the least power to misrepresent and fight me, would be in Congress. But Congress was not to meet until December, and this being the latter part of July, I determined upon spending the interval in Europe for the purpose of examining the mines, visiting their big tunnels, consulting some of their great engineers, in order to lay my experiences before Congress, at the same time paying close attention to the facilities which would exist in Europe for securing the required funds. I was supplied with letters of introduction from many of the bankers of San Francisco, which had been furnished me on my first journey east, among which was one from the Bank of California, signed by William C. Ralston, their cashier, and chief manager, to the Oriental Bank Corporation of London, recommending me personally and the tunnel enterprise to their English friends as an excellent investment. This letter, however, I did not of course make use of, after what had transpired, and it remains in my possession now.

I travelled through Ireland, England, France, Belgium, Holland, Prussia, Austria, Poland, Hungary, Bavaria, Switzerland and Italy, visited many of their mines, was received with great courtesy, and came in contact with many of the leading financial, political and scientific men of Europe. I descended into their deepest mines—the deepest in the world—and after all my investigations become more convinced of two things: 1st, That mineral lodes, true fissure veins, as shown by all experience, descend downward indefinitely; and, 2d, That in order to work mines rationally and profitably, wherever the topography of the country allows it, great district or main tunnels, which serve as highways under the mountains, must be constructed.

I entered into correspondence and had personal interviews with such men as Von Cotta, the geologist; Weissbach, the engineer; Baron von Beust of Saxony; Chevalier, the French senator and political economist; Sir Roderick Murchison, President of the London Geographical Society; John Stuart Mill, member of Parliament; Von Dechens, the friend of Humboldt; Baron von Hingenau, chief of the mining department of Austria; Burkhardt, Koch and many others. I submitted my plans to these men, and they unanimously agreed upon the importance, feasibility, and magnificence of the undertaking, and addressed to me many complimentary letters. I found it impossible, however, to raise any funds in Europe for several reasons. In the first place, people there as a general thing have no confidence in our mining laws, as far as security of property is concerned; secondly, they raised the same objections which were raised in New York, that our own people on the spot must first show their confidence by their subscription and by commencing work; and, thirdly, at that particular time, if there had been no other obstacle in the way, the threatening attitude between France and Prussia would have prevented the consummation of any extensive financial operation abroad. I found but one concern, the house of Erlanger & Co., the great bankers of Paris, who were willing to entertain the project at all; but after sending for one of their London partners, they also concluded it to be impossible to carry ont the affair at that time. So I returned again to the United States, and left Liverpool on the 1st day of December, 1867, arriving at Washington just after Congress had met. I now commenced to go to work in good earnest, made the favorable acquaintance of nearly all the members of both houses of Congress, and the leading men of the nation, and had a fine prospect of success.

[Here Mr. SUTRO narrates the renewed interference of the Bank of California party, by means of telegrams addressed to members of Congress.]

These telegrams I paid but little attention to. The Bank may be a big concern here; at Washington it amounts to but precious little. Whether our Senators were much influenced thereby is hard to tell I asked no favors from them, and started out to make my own fight.

The Committee on Mines and Mining, fully appreciating the impetus which would be given to the development of our great mineral resources by the construction of this tunnel, after a most thorough investigation, perfected a bill recommending a loan of $5,000,000, in twenty years seven per cent. bonds, to be delivered at the rate of $15,000 for every 100 feet of tunnel completed. To show how thoroughly this committee understood the importance of the proposed work, I will here give an extract from their official report, published by order of the House of Representatives, in which they say:

[We omit the extract from the Committee's report.]

The measures grew more and more popular, in spite of the secret efforts of the California Bank, and would no doubt have passed with a three-quarter vote of the House, had it been possible to reach the Committee on Mines and Mining in the regular order of business.

Unfortunately, when we were almost within reach of the bill, the Impeachment trial of Andrew Johnson commenced, and before its weary length was terminated, it was so late in the session that our committee never was reached at all, and consequently the Tunnel bill had to go over.

Congress adjourned late in July last year, and I returned to California somewhat disgusted with my ill luck, but never for a moment losing my confidence in ultimate success. Before I left Washington many letters were addressed to me by members of Congress, expressing their regret at my bill not having been reached, and giving it as their opinion that at the next session it would certainly pass. Amongst these was one from Thaddeus Stevens, one of the very best friends the measure had, who stated that at the next session he would warmly support it, but the old man did not live to see another session; he died within a fortnight.

After spending a few weeks at New York, I returned again to California, from whence, after remaining a couple of months, I once more proceeded to Washington to renew my efforts.

In the meantime Gen. Grant had been elected President of the United States, and the misunderstanding which existed between him and Andrew Johnson prevented any special legislation, which, as was stated, might embarrass the former's administration. So Congress concluded to enter into no legislation whatever, with the exception of the passage of some appropriate bills necessary for the support of the Government, and thus the Fortieth Congress expired without acting on my bill.

The new Congress convened on the 4th of March last, under good auspices, and Gen. Grant, in his inaugural, referring to the payment of the National Debt, alludes to the importance of developing our vast mineral resources, and speaks of the treasure-chest which Providence has provided us, buried in our Western mountains, for which we must forge the key now to unlock. After a short session of a few weeks, Congress adjourned until next December, when, for the first time, I expect to get a fair chance to bring my bill up and have it thoroughly discussed.

I have but little doubt but that, notwithstanding the great efforts the California Bank will make to control the action of both our Senators, they will firmly stand by the people, and use all their influence for the accomplishment of this great work.

In the meantime I have come out here among you, my fellow-citizens, in order to explain to you all about this tunnel business, and while some of the moneyed men of San Francisco look upon the whole thing as a failure, not knowing anything of its history, nor of the great fight of the California Bank ring against it, and which erroneous opinions also many of you entertained, I have more confidence in its success now than ever.

Fellow-citizens! I have come among you to propose to the working people of Nevada to join in together in order to start work on the tunnel itself, and thereby give me that solid indorsement at home, from those who live on the very spot, from the men who work in these very mines, and who are supposed to know most about it, which I have lately sought in vain from the mining companies and from the people who should be most deeply interested. Your solid indorsement will be valued highly at Washington; it will annihilate the efforts of that scheming combination, the California Bank.

Fellow-citizens! It must now be evident to you that the arch enemy of this great work is that hydra-headed monster you have reared in your midst, and allowed to grow into gigantic proportions; that enemy of the welfare of the whole Pacific coast, that incubus upon your prosperity, that crafty concern which resorts to every means to carry out its ends! And why do they oppose the tunnel? Why do they all in their power of cunning, and scheming, and planning to defeat it? Why are all their satellites and hirelings told they must defeat and oppose the tunnel project with all their might and power, by fair and by foul means? Why do they threaten to discharge their employés if they take a hand in it? And why are they compelled to do all this in the darkness of night? Why is it they dare not make their motives known?

* * * You all know that there is an institution in San Francisco, called the Bank of California; they have a branch house in Virginia City, over which William Sharon presides. The principle upon which that concern is carried on is to get deposits from as many people, and in as large amounts, and from as many quarters as possible; that is where their power lies! Their capital stock is $5,000,000, with which they do a business of many millions more. They loan out a great deal of money; whether they loan out any of their depositors' money we don't know; but they loan out a great deal; they loan a great deal to their individual members, who are engaged in extensive speculations; some of them pay, but a great many do not; that money is scattered all over creation, and whether it is probable that they could pay all they owe, should they be called upon, I doubt very much. Money in a good iron safe, or deposited in some of the solid banks of San Francisco, might be a great deal securer. I shall, however, revert to this more in detail on some future occasion.

Amongst other things, they loan money on mining stocks; the Virginia agent keeps the San Francisco Bank well posted on the value of each particular mine, and on the special manipulation going on in it; daily telegrams and letters are sent on the reports of special experts kept for that purpose. This information, which is withheld with the utmost secrecy from the public, enables the San Francisco concern to advance money on stocks and to brokers, without much risk, while no other bank or moneyed institution dare touch it. Now let us see how this operates: all men who deal in these stocks are more or less of a gambling disposition; they put in a little money and want to make a great deal; they almost always go beyond their means; they buy a certain number of shares, carry them to their broker, or to the Bank of California, borrow as much money as they can get loaned on them, in order to enable them to buy more, and are compelled to transfer their shares, not to the bank, for that would make it responsible for any debts which might be contracted by the mining companies, but to one of their irresponsible clerks, whose

name figures quite extensively in the delinquent lists, and whose name only stands for that of so many miners or other individuals. Thus that bank clerk has a large amount of stock standing in his name, without owning a share, and no outsider knows whose stock it is. This is one way the bank obtains control of a large amount of stock both at San Francisco and at Virginia; but by far the greatest part comes under their control in a still easier way. Most of you miners and others, who speculate in stocks, go to a broker, deposit your money and get him to telegraph to his partner in San Francisco for a given number of shares in a certain mine; the purchaser here never sees that stock; it is issued in the name of the broker, for to issue it in the name of the purchaser causes delay, inconvenience and expense. Many of these brokers receive accommodations from the bank, and are consequently under obligations to them; many others are simply convenient stool pigeons in the hands of the bank ring. Now what is the result of all this? When the annual election comes off in a mining company the managers of the bank hold a sufficient amount of stock in their hands as collaterals, together with the proxies they obtain from brokers, who represent the miners and others, so that they can almost invariably step into an election and cast their vote for a set of trustees which have previously been made up in the back office of the California Bank. And who are these trustees? About a dozen of them compose the trustees in nearly all the mining companies, and a majority in each company are either under the thumb of, or mere tools of the bank, and if you were to examine the books you would find that most of them do not own more than three or four shares a piece! And these few miserable shares even do they not in many instances own at all, but they are simply loaned them, and transferred to their names, so they may act as trustees! Those are the men whom you allow to manage your property! In order to throw sand into people's eyes, one or two trustees are usually elected, who bear a high reputation for integrity; and so adroitly are the affairs of most of these companies managed between the majority of the trustees, the president of the company and the superintendent, that the minority of the board often do not suspect even that anything is wrong, and thus lend their names to the most nefarious schemes for entrapping the public.

In some instances the bank ring cannot obtain sufficient stock in the manner indicated, and then they are compelled, although reluctantly, to purchase a sufficient amount temporarily to make up a majority until after the election. To show how much value is placed in getting the management of a mine, considering that the trustees receive no salary, you need only look back to the election of the Hale & Norcross a little over a year ago, when the bank ring paid as high as $16,000 per foot, while the true value of the stock was less than $2,000.

In this manner the ring, without owning a share of stock, or but very little, obtain the management of these mines and become your masters, while you are, to a large extent, the owners of the property! They become the absolute tyrants who rule over you, and threaten to discharge you if you do not dance according to the tune they fiddle! They arrogate to themselves the power and dictate to you, the proprietors of these mines, what shall be done; they regulate the amount of your wages; employ and discharge you as they see fit, and even threaten to turn you all out and employ Chinese in your stead. Of course they lose no opportunity, and embrace every occasion, to impress you with the pretended fact that they own a very large amount of stock in all these mines. Go and examine the books, convince yourselves, and then wonder how such unblushing falsehoods, based on brass and impudence, could have existed so long and notbe exposed.

Now let us see how their control of the mines further operates; there is a concern called the Union Mill and Mining Company, supposed to be composed of just about the same men as control the California Bank and the mining companies. At the head of that concern, at Virginia City, is the agent of the California Bank. Somehow or other this mill association has gobbled up all the valuable mills in the neighborhood, and as is stated, by paying but a very small portion of the cost of them. Most of these mills were erected by private individuals, depending on a supply of ore from the companies on the Comstock lode. As indicated above, the bank ring obtained control of nearly all the mines; it was therefore an easy matter for them to furnish such mills only with rock, as they saw fit. In this manner some mills, especially those whose financial affairs were not very sound, could get no supply of ore. In trying to keep running on small supplies from outside mines, and here and there on temporary supplies from the Comstock lode, which was furnished them in order to varnish over the manipulation then progressing, their mills would stand idle a portion of the time, which involved them into debt. They had to borrow money from the California Bank, the only moneyed institution at Virginia City, which had a policy of being remarkably accommodating in such instances. The poor victim taking that money signed his death warrant! As soon as he became thus indebted, he could somehow or the other obtain no more ore for his mill at all; he could not pay the interest on his indebtedness; and after a few months the mortgage on his property, costing say $100,000, would be foreclosed for about $20,000, utterly ruining him.

In this wise the mill ring or bank became possessed of nearly all the valuable mills in the neighborhood, costing millions of dollars, at a comparatively trifling cost to them.

Now, mark the result. The same ring is managing the bank, the mills, and the mines, but own but precious little interest in the latter. Of course they are sure to make all the money out of the mills, even at the expense of the mines. Mills with a capacity of 1000 tons per day must be kept supplied at all hazards. The price of crushing is fixed at $13 per ton, by the mutual agreement of the same crowd; this leaves a profit of $7 per ton, or $7000 per day. If a mine does not furnish rich ore, poor is sent to the mills, for they must be kept going. If that runs the mine in debt, how easy is it to put on an assessment, and make you the stockholders pay the loss, or, in other words, turn over the amount thus collected into the pockets of the mill association! If a mine has some rich ore, but only a limited quantity, how easy is it to intermix a sufficient quantity of bedrock in order to increase the number of tons to be worked! It is asserted, and can be substantiated by many credible witnesses, that thousands of tons of ore have gone to the mills which paid as low as $5 per ton, while it costs $20 per ton to mill and mine it, thus taking $15,000 out of your pockets for every 1000 tons worked; that is to say, in twenty-four hours.

But this is not all. There is still another way by which you are victimized. Supposing the superintendent and foreman of a mine are pliable tools in the hands of these cormorants, how easy is it when a rich body of ore is discovered to keep it secret, and instead of taking it out start the miners going in a wrong direction, taking out inferior ore or bedrock, sending it to the mills, involving the mine in debt, necessitating assessments, and thus depreciate the stock? And how simple is it for the ring to gobble it all up again quietly while it - s down, and after a large amount of it is secured to set all the men to work that can find room and take out the good ore, make a great noise over it, declare large dividends, send up the stock, and then quietly step out and pocket a million or so?

How many of you have been bitten in this manner? What show have you when the cards are stocked on you? Have you ever seen a cat play with a mouse? It lets it run a little piece and then catches it again, and repeats the experiment a number of times, to its great delight and amusement. But did you ever know it to fail that the cat ate up the mouse in the long run?

A few of you make a good strike once in a while by sheer accident; that keeps up the excitement, and so you keep all gambling in stocks, pay your assessments, and in the end you will all be eaten up like the poor mouse. There is no guess work about it, it is a sure thing.

There is still another item connected with these mines which is worth while looking after. The parties managing them of course have control of the funds of these concerns, and the handling of a million of dollars or more, year in and year out, is an item not to be despised. If the ring is hard up, as is the case now, why it is an easy matter to slap on an assessment of a quarter of a million or so, and thus make the people come to the rescue of their empty cash-box!

* * * But the ring, not yet satisfied with all these manipulations, and with an unsatiated desire to draw the very last drop of life-blood from the people, has lately entered into another scheme of pilfer. I refer to the Virginia and Truckee Railroad. Not satisfied with controlling the mines; not satisfied with owning the mills; not satisfied with all the plunder obtained before, they came to the conclusion that a railroad to the Carson River, where their mills are mostly located, would be a good thing. They not only thought that by owning such a road they could drive all the teamsters out of the country, and thus squeeze two or three dollars additional out of every ton of ore transported over their road, but they also expected to monopolize all the wood and timber trade, and charge whatever price they please to the mining companies. But while they were accomplishing all this, and opening up a new source for plunder, their great motive for getting up this railroad scheme was that they expected thereby to kill the tunnel project, at least for some time to come. Of course they could not pretend that a railroad to Carson River would drain or ventilate the mines, or abolish the steam engines, or explore the whole country, but they did falsely pretend that all the low grade ores could be extracted, and with the increased facilities for transportation, reduced to advantage. If they did not expect to make people altogether believe that the railroad would be a substitute for the tunnel, they did at least expect that this threatening tunnel question would be postponed thereby for another year or so, with so much additional chances of seeing me used up by that time. But to build a railroad costs money; and being accustomed to obtain whatever their heart desires from the people, they concluded to own a railroad and have the dear people pay for it.

Being the trustees of the mining companies, it was an easy matter to subscribe to themselves such amounts as the stockholders would possibly stand—some of the mines levying assessments in order to raise the money. Thus, about $500,000 were contributed, for which the trustees, before long, will be held responsible, as an act on their part entirely unwarranted and illegal. But this amount was not sufficient to build the road; so it was concluded to get the Legislature to come to the rescue. Bills were passed—God only knows how—and Story, Ormsby and Lyon counties were compelled to give and make a present to the ring of bonds amounting to $575,000. The people were misled in the first instance by the false title of the Virginia and Truckee Railroad, and in their anxiety to obtain a connection with the Central Pacific, which lies north of Virginia City, they overlooked that the bill passed by the Legislature was for a road to Carson River, in the opposite direction. Was there ever such a swindle perpetrated before on any people? Every man and woman in these three counties compelled to contribute their hard earnings to meet the interest and principal, amounting to over a million of dollars, and which will ultimately swallow up all your private property, for bonds issued to a railroad which will not be one particle of benefit to the people, but only to a clique of men, the self-constituted rulers of the people. "But whom the gods destroy, they first make mad!" That railroad business was too much for the people; it has opened their eyes, and the remedy will be found; they will assert their rights and throw off the yoke of their oppressors.

Steps should immediately be taken to prevent the issuance of these bonds; the law is clearly unconstitutional, and no Court in this State will dare to sustain it. If the Legislature had the right to compel you to give away $300,000, why they would have the same right to compel you to give $3,000,000; they would have the same right to take all you possess. The thing is too absurd to require any argument. Stop the payment of those bonds, and you compel the ring to finish the railroad from their own means, if they have any; then start the tunnel going and you will break them up altogether, for they will not be able to sell out their railroad stock, as they expected to do by next spring, by running immense quantities of low grade ores down to the mills, and thus make a big showing as to the profits of the road; in making that showing they expected you to foot the bills, by paying assessments to make up the loss sustained in working rock, which must run the mines in debt.

* * * Laboring men of Nevada! Shake off the yoke of slavery and assert your manhood! The same power which has thus far defeated the tunnel project is crushing you down into the dust; they threaten to take your bread and butter from you if you subscribe to the tunnel stock; but you must act jointly, and there lies your power. If you will all come in together, they dare not discharge you; let 3000 laboring men pay in an average of $10 per month, which gives you $30,000 per month or $360,000 per annum, and insures the construction of the tunnel, carrying with it the ownership of the mines. That amounts to 33 cents per day! Who is there among you so poor as to miss it? How many of you expend that much every day in stimulants, cigars and other luxuries? Put that money into the tunnel; it is laying up something for a rainy day. The money will be expended directly again in labor amongst yourselves *under your own direction*, and from dependents you will become masters. It will be the most glorious triumph of labor over capital!

* * * Do you have any fear the work will ever stop again after it once starts? I have none myself. When that tunnel is daily progressing, with chances of striking rich veins at any hour, everybody will want to invest; everybody will then be the friend of the enterprise. When people see it is going to go, they will all say they knew it would. You will no longer be able to find any one who ever opposed it; the newspapers will all come out for it; the excitement will run high, and in a very short time people will be eager to invest at double or triple the price. So much then for the dollars and cents view of the question; but let me revert once more to the other, which is by far the most important.

Supposing, then, your contributions were outright gifts to the cause, would you be the loser? I think not.

Miners and laboring men! What is the price of your health, your liberty, your independence? Are they not worth more than all the filthy lucre you could possess? Who is there among us so avaricious as to refuse to give and donate outright a few paltry dollars per month to a cause which will elevate your race, secure your health, your liberty and your independence? A cause which will insure to you liberal wages; a cause which will effectually settle that vexed Chinese question; a cause which will make you the power of this land, make powerless your oppressors, and break up your arch-enemy, the California Bank! I say, who is there so blind as not to see the magnitude of the question?

Let a noble rivalry spring up among you who shall come in first: drop all prejudice; let all trifling objections fall to the ground; let one excel the other in magnanimity; let all make one joint, grand, unanimous effort, and victory will be yours.

Oregon.

THE GREAT MINING DITCH IN EASTERN OREGON COMPLETED—MORE GOOD WORDS FOR JOHN CHINAMAN.

WE have another noteworthy illustration of John Chinaman's value as a cheap laborer in the completion of the "big ditch" in Burnt River, Willow Creek and Shasta districts, Eastern Oregon. This great work, upon which depends the development of one of the richest mining regions on the Pacific slope, has been for several years in course of construction. Recently operations were suspended on account of the scarcity and high price of labor. How this difficulty has been overcome is thus told by the *Dalles Mountaineer*, Aug. 27: "The owners, finally, through Judge McCoy, a prominent citizen of Portland, effected a contract with two Chinese firms of that place to complete the ditch to Camp Creek, a distance of twenty-three miles from the present terminus. Forty-five miles of ditch had already been constructed when the company suspended work. It is the intention of the company to hereafter extend the ditch to Burnt River, in order that there shall be no possible failure in the supply of water. This latter extension, from Camp Creek, will be twelve miles—to be completed this fall or early next spring. The new ditch will have a capacity somewhat greater than that part of it already finished, being four feet and a half at the bottom, twenty inches deep, and five feet wide at the top. The lower side embankment is wide enough on the top to make a good foot trail. It will thus be seen that the work will be of the most substantial character. The capacity of the ditch will be about 1100 inches of water. Judge McCoy took up with him only fifty or sixty Chinamen whom he at once put to work; and set himself about procuring a larger force. He, at first, experienced much difficulty in procuring hands, but after talking with the leading Chinamen and representing to them the permanent advantages which would be secured to them from the completion of the ditch, he obtained nearly a hundred men, and when he left, the force was augmenting daily. The total number of men at work when he left, a week ago last Monday, was about one hundred and sixty. He thinks there must be now not far from two hundred. The contract for constructing twenty-three miles, will be completed by the middle of October, and possibly a few days sooner. From personal observations, the Judge is satisfied that the districts to be supplied—all the southern tributaries and branches of Burnt River, Willow Creek, Shasta Creek, etc.—will be, when the ditch shall be completed, the richest mining region on the northern Pacific slope. The dust is there, and all that has heretofore been wanting is water. The ditch will supply this in unfailing quantities; and next season will unquestionably witness a period of mining prosperity unprecedented. Judge McCoy seems to have undergone an entire change of opinion in regard to the policy of employing Chinese labor in the mines. In the first place, but for the cheap labor they afford, it would have been next to impossible to finish the ditch; in the next place, he finds that many of the claim owners have been able to derive a good income from their claims, worked by Chinamen, where, had they been compelled to depend on white labor, they could not have realized a cent; and he thinks that this must, in the nature of things, always be so; while in such mines as the white men will work, the Chinamen will never be in the way."

California.

REPORT FROM MR. J. G. RICE, ON THE MARIPOSA MINES.

BEAR VALLEY, Sept. 20, 1869.

MARK BRUMAGIM, ESQ., *Trustee Mariposa Estate:*

DEAR SIR—As before stated, there are now in sight, or to be depended upon, from 17,000 to 20,000 tons of ore in the Pine Tree and Josephine mines; and by continuation of dead-work, an unlimited supply may be obtained.

The capacity of the Benton mills can, as far as present appearances show, be easily increased to say 135 tons, by putting up six of Ryerson's pulverizers. As far as tested, they will crush easily sixteen tons per day each, while their rate of crushing, while in actual motion, is nearly a ton per hour. There is every reason to believe the machine will succeed. A few days more trial will prove its merits.

At Mariposa the mine is continually improving in the quality of ore extracted, west, as well as east, of the main shaft. It is concluded to reopen the whim-shaft west of the main shaft, where the splendid specimens of massive gold were taken out in 1863 and 1864. From all accounts I can gather, that shaft gave promise of a continuation of the extraordinarily rich pockets which were encountered all along down that shaft from a depth of about 100 feet.

From the numerous deep shafts (comparatively) which were sunk by various parties on the Mariposa vein, chiefly by different claimants or squatters before Fremont came into possession, it would seem to prove that the rich deposits encountered must continue in depth, and would warrant the sinking of a deep shaft and running drifts each way, to undercut all these shafts, which, in turn, may serve as ventilators to such deep workings.

From the quality of the ore found at the surface, all the ground between the main shaft and the whim shaft may fairly be presumed to be of good quality. It is found to be so as far as worked in the main mine, viz.: 125 feet west of shaft. There is lacking a distance of 200 feet to communicate between the main and whim shafts, which will be drifted through as soon as may be, thus opening a space of 500 to 600 feet of pay ground in the Mariposa vein, of an average thickness of four to five feet of good quality, and with prospect of encountering rich pockets or deposits of gold for a large share of that distance.

The yield of the ore now being crushed at the Mariposa mill is from $16 to $20 per ton, and the prospects of that class of ore continuing or improving for years are very promising. The amount of ore in sight and to be with certainty calculated upon is not less than 20,000 tons, not including that lying unopened between the main and whim shafts, nor below the present main shaft.

As soon as the Ryerson pulverizer is fully proven, I would recommend two or more to be put up in the Mariposa mill. I will give you some estimates of advisable expenditures shortly.

Yours very respectfully,

J. G. RICE, Agent in trust.

MARKET REVIEW.

The Coal Trade.

NEW YORK, Oct. 8, 1869.

ANTHRACITE COALS.

WHOLESALE.—Just as matters in the various regions had become settled from the late miners' strike and the Avondale calamity, and we were congratulating ourselves that we were in a fair way to receive a supply of coal at reasonable figures, we are aroused by reports from the mining districts, detailing great damage done to the mines and transportation lines by the great storm. Telegrams inform us that communication to market is interrupted, and that the damage done in many cases will consume two or three weeks for repairs. The Schuylkill canal is but little injured, but has been idle all this week up to the present time, and will, in all probability not be ready for use until Monday next. On the Philadelphia and Reading Railroad there has been but slight delay of trains. Transportation by the Lehigh Valley Railroad and Lehigh and Susquehanna Railroad has been suspended during four days of the present week, and the Lehigh canal cannot be repaired for two weeks. The Delaware, Lackawanna and Western Railroad Company have not passed any coal north or south since Monday last, and do not expect to be able to resume running until Monday next. The Delaware and Hudson canal has been damaged so seriously that it will require three weeks time to pass coal over it. It will require two weeks to put the Delaware Division, Delaware and Raritan, and Morris canals in running order. Very few dealers, at a glance, will comprehend the amount of tonnage that will be lost by this break in transportation, and we estimate that—coming, as it does, at this late time in the season, (within seven weeks of the close of transportation)—when they do realize the fact it will greatly effect the market. We estimate that we have lost the following amounts:

	Tons.
Philadelphia & Reading R. R., 2 days..	30,000
Schuylkill Canal, 7 days	25,000
L. V. R. R., 4 days	25,000
L. & S. R. R., 4 days	8,000
L. Canal, 14 days	65,000
Del. L. & W. R. R., 7 days	45,000
Del. & Hudson Canal, 21 days	180,000
Other Sources, 7 days	30,000
Total	408,000

Since the resumption of operations, unusual exertions have been made to push coal forward to market. Indeed we hear of wonderful results in this direction, where immense quantities have been mined and shipped in a single day. We have taken this fact into consideration in calculating the above table. Now then, dealers will certainly become alarmed as to their chances of obtaining their usual winter supply of coal. The surplus Schuylkill coal that was in this market last week has almost disappeared, and there is no Lehigh coal to be had at all, while other kinds have already advanced some fifty cents per ton, and themarket firm, with a limited supply.

We have, for several weeks past, urged dealers to buy their coal, and not to hold off, fearing fresh complications in the mining regions, such as strikes, freshets, &c., &c. Those that have taken our advice, as in times heretofore, will congratulate themselves as having acted wisely.

PRICES.—See corrected quotations in our tables of this week.

RETAIL.—There has been an active business doing in this and adjacent cities during the past week. Everybody has been busy. The Pennsylvania Company are selling at $8 per ton delivered, and claim a delivery of 560 tons in one day in Brooklyn; $8 25 to $8 50 is being obtained for Scranton and Lackawanna coal, while Lehigh still sells at $9@$10.

FREIGHTS.—Vessels have been in more demand. The coal sold at the last Scranton Sale has been freely taken, and more vessels have been required. Freights have in consequence ruled from 20 to 50 cents higher, but are yet at a very low figure, and scarcely pay the boatmen.

CUMBERLAND COALS.

The market for Cumberland coals remains firm, and the demand is good. Manufacturers and others who have of late adopted these coals, in place of Anthracite, for steam generating purposes, refuse to relinquish them unless a large difference in the price of the two is offered. We believe that these Cumberland coals will eventually become even more popular among engineers when their merits are more fully tested. It is claimed that four tons of Cumberland will generate as much steam as five of Anthracite, and a fire can be started more easily. We advise retailers generally throughout the country to recommend these coals to manufacturers and steamers. The prices in the market rarely fluctuate (has not varied 50 cents in two years); therefore the trade is reliable and the profits are sure. The prices to-day are $4 75 f. o. b. at Alexandria, and $7 25 on board at New York. Any of our wholesale dealers may be applied to for a supply of George's Creek or Cumberland coals.

The interferences by the late storm will not show in our table of shipments of coal to tide water until next week.

The following table exhibits the quantity of Coal passing over the following routes of transportation to tide-water, for the week ending October 2, 1869, compared with the same time last year:

COMPANIES.	1868. WEEK.	1868. TOTAL.	1869. WEEK.	1869. TOTAL.
Phila. & Reading R.R.	96,951	2,284,783	98,647	2 775,710
Schuylkill Canal	32,495	671,026	23,807	506,593
Lehigh Valley R. R.	51 919	1,795,838	23,629	1,662,810
Lehigh and Sus. R. R.	17,368	360,859	19,968	623,191
Lehigh Canal	35,636	691,411	25,778	582,720
Scranton North	17,210	441 461	16,339	268,221
" South	21,6 9	826,165	31,018	738,971
Penn. Coal Co., rail	21,689	693,808	24,112	739,760
" " canal	1,069	24,715	597	14,656
Del. and Hudson, rail			1,168	105,528
" " canal, north	50,625	1,209,934	42,709	847,231
" " " south			8,295	68,787
Shamokin	7,680	373,126	12,570	314,967
Trevorton	1,158	19,559	1,108	23,647
Short Mountain	4,154	84,901	1,292	79,859
Lykens Valley Coal Co.	2,128	66,977	1,997	54,362
Huntingdon & Br'd Top	7,351	194,191	7,141	267,862
Wyoming South	8,744	236,900	12,060	224,686
" North	5,649	53,128	4,618	43,355
Williamstown, Co'y	5,128	132,698	4,578	157,141
Total	384,111	10,149,460	369,271	10 102,022
1869	359,271	10,102,022		
Decrease	24,840	47,438		

Report of Coal Transported over Lehigh Valley Railroad

For the week ending October 2, 1869, and previously this season, compared with same time last year:

WHERE SHIPPED FROM.	WEEK. Tons. Cwt.	PREV'LY. Tons. Cwt.	TOTAL. Tons. Cwt.
Total Mahanoy	6,586 12	331,103 07	337,689 19
" Beaver Meadow	2,645 07	335,423 14	338,068 01
" Mauch Chunk	40 15	182 08	223 03
" Upper Lehigh		8,581 11	8,581 11
" Hazleton	3,229 18	679,927 04	683,157 02
" Wyoming	12,552 15	33,810 15	343,363 10
Total	25,055 07	1,686,028 19	1,711,081 06
To Lehigh & S. R. R., at P'n. Hav. for rail		4,406 16	4,406 16
Do. for canal	1,367 04	119,367 05	120,734 09
At Mauch Ch'k for canal	872 16	96,673, 07	97,546 03
Total Anthracite	27,295 07	1,906,476 07	1,933,771 17
Susquehanna Region Bit. Coal (Fall Creek)		552 03	552 03
Total by rail and canal	27,295 07	1,907,028 10	1,934,323 10
Same time last year	69,776 09	1,973,364 09	2,043,140 11
Increase			
Decrease	42,481 02	66,335 19	108 817 04
Forwarded East from M'h Chunk by rail	23,629 00	1,639,180 17	1,662,809 17
Same time last year	51,910 08	1,743,918 09	1,795 857 17
Increase			
Decrease	28,290 08	104,737 12	133,028 08

RECAPITULATION.

Forwarded East from M'h Chunk by rail	23,629 00	1,639,180 17	1,662,809 17
Delivered at M'h Chunk	10 00	708 03	718 03
Delivered on line of road above Mauch Chunk	243 18	6,182 08	6,426 06
Delivered above M. Chunk for use of L. V. R.R.	1,147 04	34,443 18	35,591 02
To N. C. R. R., at Mount Carmel		2,516 09	2,516 09
To L. & S. R.R., at P'n Hav., for railroad		4,406 16	4,406 19
Do. for canal	1,367 04	119,367 05	120,734 08
Do. Packerton for rail	25 03	3,649 07	3,674 12
At M Chunk for canal	872 16	96,676 07	97,546 03
Total	27,295 07	1,907,028 10	1,934,323 17

Schuylkill Coal Trade.

Report of coal transported over the Schuylkill Canal for the week ending Thursday, September 30, 1869.

	Tons. Cwt.
From Port Carbon	7,683 00
" Pottsville	917 00
" Schuylkill Haven	14,147 06
" Port Clinton	860 00
Total for week	23,607 06
Previously this year	482,985 16
Total	506,593 01
To same time last year	671,026 15

Report of coal transported over the Philadelphia and Reading Railroad during the week ending Thursday, Sept. 30, 1869.

	Tons. Cwt.
From St. Clair	31,448 12
" Port Carbon	8,044 08
" Pottsville	4,479 05
" Schuylkill Haven	36,356 08
" Auburn	4,319 00
" Port Clinton	11,141 17
" E. P. R. R.	66 15
" Harrisburg and Dauphin	11,904 18
Total paying freight	107,761 03
Coal for Company's use	3,101 18
Total for week	101,863 01
Previously this year	3,099,368 02
Total	3,210,231 03
To same time last year	2,651,204 02

Lehigh Canal Coal Trade.

Shipped for the week Ending October 2, 1869.

WHERE FROM.	WEEK. Tons. Cwt.	TOTAL. Tons. Cwt.
Total Mauch Chunk Region	11,731 02	185,680 06
" Beaver Meadow "	777 16	93,639 12
" Mahanoy "	95 00	2,531 01
" Hazleton "	1,367 04	117,451 18
" Upper Lehigh "		5 142 07
" Wyoming "	11,8?7 05	178,274 15
Grand Total	25,778 07	582,719 19
Corresponding week last year	35,635 16	691,411 15
Increase		
Decrease	9,857 09	108,691 16

Lehigh and Susquehanna Railroad.

Report of Coal Shipped South for the week ending Oct. 2, 1869.

WHERE FROM WYOMING REGION.	WEEK. Tons. Cwt.	TOTAL. Tons. Cwt.
Total Mauch Chunk Region	5,182 17	128,459 17
" Hazleton "	1,267 04	118,871 10
" Upper Lehigh "		77,193 12
" Wyoming "	26,538 03	593,785 14
Grand Total	33,068 04	918,309 13
Corresponding week last year	34,566 18	689,256 17
Increase		229,053 16
Decrease	1,498 14	
Forwarded South from Mauch Chunk	18,682 02	576,480 10
Delivered on line of Lehigh & Sus'na R. R., above Mauch Chunk	934 16	25,542 17
Delivered to Lackawanna & Bloom R. R., at Plymouth Bridge	371 03	16,044 00
Delivered to Lehigh Valley R. R. Co., at Sugar Notch		5,151 03
Delivered at Coal Port, for shipment by Canal	13,080 03	295,511 03
Total	33,068 07	918,309 13

Cumberland Coal Trade.

BY C. & O. CANAL.

For the week ending Oct. 2, 1869, the shipments by the Chesapeake & Ohio Canal were as follows:

	Tons.
American Co.	3,704 18
Borden Co.	2,486 09
Central Co.	3,378 19
Consolidation Co.	3,947 13
C. C. & I. Co.	1,319 15
George's Creek Co.	665 16
Hamp. & Baltimore Co.	840 14
Midlothian Co.	1,209 16
Maryland.	1,163 19
For private parties.	1,514 12
Total for week	19,935 11

B. & O. RAILROAD.

The shipments over the Baltimore & Ohio Railroad for the week ending Oct. 2, 1869, were as follows:

	Tons.
From Cumberland & Pennsylvania R.R.	
Consolidation Co	3,923 01
Borden Co,	1,325 12
Balt. & Hampshire Co.	851 05
Maryand Co	477 09
Gooke	231 03
From Eckhart R. R.	
C. C. & I. Co.	3,911 16
From George's Creek via Piedmont.	
George's C. C. & I. Company	1,667 16
Maryland	1,490 13
Franklin	2,059 07
Central	2,305 07
Atlantic	1,910 18
Piedmont	2,684 14
Swanton	1,326 02
Potomac	1,873 08
Barton	509 01
American	2,265 14
Hampshire	2,470 05
Total	28,994 09

Statement of coal transported over the Cumberland & Pennsylvania Railroad during the week ending Saturday, October 2, and during the year 1869, compared with the corresponding period of 1868:

WEEK.

YEAR.	C. & O. CANAL. Tons. Cwt.	B. & O. R. R. Tons. Cwt.	TOTAL. Tons. Cwt.
1869	17,731 01	23,032 04	40,763 05
1868	16,026 11	15,881 05	31,907 16
Increase	1,704 10	7,150 19	8,855 09

YEAR.

YEAR.	C. & O. CANAL. Tons. Cwt.	B. & O. R. R. Tons. Cwt.	TOTAL. Tons. Cwt.
1869	457,373 07	748,144 15	1,205,578 02
1868	309,737 17	442,555 13	752,293 10
Increase	147,637 10	305,589 02	453,224 12

The *Telegraph*, summing up the results of the recent storm upon the Chesapeake and Ohio canal, says: "The damage, so far as heard from, has not been heavy. The canal broke just above the Cabin John culvert, and the steam packet that started up was obliged to return to Georgetown. The extent of this break is not ascertained. The steamer Pioneer, Captain Cathcart, run ashore above the Aqueduct bridge, and is leaking badly. This is a coal-boat, running on the Philadelphia line."

Prices of Coal by the Cargo,

[CORRECTED WEEKLY.]

SCHUYLKILL.	AT NEW YORK, Oct. 8. R. A.	W. A.	AT PHILADELPHIA, Oct. 7. R. A.	W. A.
Lump	$— —	$6 50	— —	6 50 to 7 00
Steamer	— —	6 50	— —	6 50 to 7 00
Broken	— —	7 25	7 25	6 50 to 7 00
Egg	8 00	7 25	7 25	6 50 to 7 00
Stove	8 00	7 50	7 25	5 50 to 6 00
Chestnut	6 25	6 25	6 50	6 50
Pea	— —	— —	— —	— —
LEHIGH.				
Lump	8 50	— —	7 50	— —
Steamer	8 00	— —	7 50	— —
Broken	7 75	— —	7 50	— —
Egg	7 75	— —	7 50	— —
Stove	7 75	— —	7 50	— —
Chestnut	6 25	— —	6 50	— —
Pea	— —	— —	5 25	— —
SPECIAL COALS.*				
Diamond Vein	R. A. 8 50		— —	— —
New England	" — —		— —	— —
Locust Dale	W. A. 8 00		— —	— —
Honey Brook, Le'h	" 7 75		— —	— —
Spring Mount.	" 7 75		— —	— —
Sugar Creek	" 7 75		— —	— —
Sugar Loaf	" 7 75		— —	— —
Fulton	" 7 75		— —	— —
Stout	" 7 75		— —	— —
Old Comp'y's.	" 7 75		— —	— —
Cross Creek	" 7 75		— —	— —
Chauncey	" — —		— —	— —
Girardville	" — —		7 60 to 7 50	
McMichael	" — —		7 00 to 7 50	
Duncan	" — —		8 00	— —
Shamokin	" 7 50		6 50	— —
Lykens Valley	" — —		8 00	— —
Broad Top	" — —		5 25	— —
Hill & Harris	" — —		— —	6 75
Henry Clay	" — —		6 50	7 00
Powelton	" — —		6 50	— —
Burnside	" R. A.		7 25	— —

Kittaning Coal Co.'s Phœnix Vein f.o.b. $5 50
" Lemon " " 5 25
Cumberland C. & I. Co.'s on board 7 25
Central C. & M. Co.'s " 7 25
Consolidated Coal Co.'s " 7 25

[*Dealers in these coals may be found in our advertising columns.]

Company Coals.

	L.	Str.	Gra.	Eg.	Sto.	Cst.
Scranton at E. Port	6 50	6 50	7 00	7 50	7 75	6 50
Pittston at Newb'g	6 20	6 20	6 75	7 10	7 50	7 80
Lackawana at Rond't.	6 50	6 50	6 75	7 00	7 50	6 50
Wilk'b're at Hoboken.	6 50	6 50	6 75	7 00	7 50	6 00

For freights to different points, see "Freights."

Prices for Coal at Mauch Chunk.

	F.L.	Bro.	Gra.	Eg.	Sto.	Cst.
Lehigh	$4 25	$4 50	$4 50	$4 50	$4 75	$3 75
Wilkesbarre	4 25	4 50	4 50	4 50	4 75	3 75

For freight to Elizabethport and to New York see "Freights."

Prices of Gas Coals.

September, 1869.

PROVINCIAL.

Duty, $1 25.

	Coarse. Gold.	Slack. Gold.
Block House	$1 75	@ 75
Gowrie	1 75	@ 75
Lingan	1 75	@ 75
Sydney	2 13½	@ 71½
Pictou	2 13½	@1 18¾
Little Glace Bay	1 50	@1 00
Caledonia	1 50	@ 75

AMERICAN.

	Coarse. Currency.	Slack. Currency.
Westmoreland Co	— —	@ —
Despard Coal Co	$8 50	@8 00
Penn	— —	@ —
Newburg Orrel Gas	— —	@ —
West Fairmount Gas Coal	— —	@8 00

AT PHILADELPHIA.

Powelton $7 80

Prices at Baltimore—SEPT. 1869.

Wholesale Prices to Trade.

Wilkesbarre, by cargo or car load $8 00@8 60
Pittston and Plymouth 7 75@8 45
Shamokin Red or White Ash 7 75@8 00
Lykens Valley Red Ash 7 77@7 80
Trevorton, Red Ash 7 25@7 50
By retail, per ton of 2240 lbs. delivered 9 00@9 75
Georges Creek & Cumberland f. o. b. at Locust Point for shipping — —@5 00
West Fairmount Gas f. o. b. — —@6 50

Prices at George't'n, D.C., & Alexandria, Va.

September, 1869.

George's Creek and Cumberland f. o. b. for shipping $4 75

Prices at Havre de Grace, Md.

September, 1869.

Wilkesbarre and other White Ash for cargoes $7 50@7 75
Lykens Valley — —@7 75
Shamokin Red or White Ash 7 50@8 00
Trevorton and Zebra Valley — —@7 50

Freights.—OCTOBER, 1869.

TO EASTERN PORTS.	From Philadelphia.	From E. Port and Port Johnston.	From Newburg.	From Rondout.
Stamford	$2 00	$1 00	$1 20	$1 25
Norwalk	2 00	1 00	1 20	— —
Bridgeport	2 00	1 00	1 20	1 25
New Haven	2 00	1 00	1 20	1 25
Hartford	2 75	1 50	— —	1 75
New London	2 00	1 15	1 30	1 40
Norwich	2 00	1 20	1 40	1 50
Mystic	2 00	— —	1 35	— —
Stonington	2 00	— —	1 35	1 35
Sag Harbor	2 00	— —	1 35	— —
Bristol	2 00	1 30	1 45	1 45
Newport	2 00	1 50	1 45	1 45
Fall River	2 00	1 30	1 60	1 50
Providence	2 00	1 30	1 60	1 50
Dighton	— —	— —	1 50	— —
Warren	— —	— —	1 50	— —
Pawtucket	2 00	— —	1 65	1 65
New Bedford	2 00	1 25	— —	1 50
East Cambridge	2 50	— —	1 75	2 10
Salem	2 50	1 80	1 80	2 00
Newburyport	2 50	2 00	1 70	2 10
Portsmouth	2 50	1 60	1 65	2 10
Rockport	— —	— —	1 65	— —
Saco	2 75	1 75	1 60	1 75
Portland	2 50	1 80	1 60	— —
Bangor	2 50	— —	1 70	1 80
Bath	2 50	— —	1 80	— —
Middletown	— —	1 25	— —	— —
Amesbury	2 70	— —	— —	— —
Boston	2 50	1 80	1 60	2 00
Cambridgeport	2 50	— —	1 80	2 05
Taunton	2 50	1 55	— —	— —
Derby	2 00	1 15	— —	65
New York	1 55	60	— —	— —
Hackensack	1 75	— —	— —	— —
Jersey City	1 65	60	70	65
TO RIVER PORTS.				
Troy	1 75	95	60	65
Albany	1 75	1 00	55	50
Coeyman's	1 60	— —	55	50
Stuyvesant	1 50	— —	50	45
Cocksackie	1 60	— —	45	45
Hudson	— —	90	40	50
Catskill	— —	— —	40	35
Poughkeepsie	1 60	75	30	25
Fishkill	1 60	— —	30	30
Cold Spring	1 60	70	30	30
Haverstraw	— —	50	45	55
Nyack	1 60	50	55	50
Sing Sing	1 60	— —	60	50
Yonkers	— —	40	60	55
New York	1 55	50	70	—
Saugerties	1 55	— —	35	30
Rhinebeck	1 60	— —	30	30
Rondout	1 60	60	30	25
Tarrrtown	1 60	80	60	—
West Point	1 60	75	30	50

Prices of Foreign Coals.

September, 1869.

Duty $1 25 per ton.

Corrected weekly by PARMELE BROS., No 32 Pine street, New York.

Liverpool Gas Caking	$ 9 50@— —
" " Cannel	14 00@— —
" House "	17 50@18 00
" " Orrel	16 00@18 00

Per ton 2240 lbs., ex-ship.

PRICES FROM YARD.

Liverpool House Orrel, screened	$16 00@18 00
" " Cannel, "	17 00@20 00

Per ton 2000 lbs., delivered.

Rates of Transportation to Tide Water.

BY RAILROAD.

TO PORT RICHMOND, PHILADELPHIA.

Philadelphia and Reading Railroad, from Schuylkill Haven $2 50

From Port Carbon, 8 cents per ton more.

TO ELIZABETHPORT.

L. V. Railroad from Mauch Chunk to Easton	$1 15
C. R. R., N. J., Easton to Elizabethport	1 81
Shipping expenses at Elizabethport	25
Total	$3 21

TO PORT JOHNSON.

L. V. R. R.	$1 15
C. R. R., of N. J.	1 70
Shipping expenses	25
Total	$3 10

TO HOBOKEN.

L. V. R. R.	$1 15
Morris & Essex R. R.	1 80
Shipping expenses	25
Total	$3 20

TO SOUTH AMBOY.

L. V. R. R.	$1 15
B. & D. R. R.	1 10
Cam. & Am. R. R.	50
Shipping Expenses,	25
Total	$3 00

BY CANAL.

Via Schuylkill Canal.

TO PHILADELPHIA.

From Schuylkill Haven	$1 70
" Port Carbon	1 50
" Port Clinton	1 70

TO NEW YORK.

From Schuylkill Haven	$2 50

Via Lehigh Canal.

TO PHILADELPHIA.

Lehigh Canal	$1 14
Freight and towage	1 15
Total	$2 29

TO NEW YORK.

Lehigh Canal	$ 71
Morris "	85
Freight	1 70
Towing	10
Total	$3 36

TO JERSEY CITY.

Lehigh Canal	$ 71
Morris "	85
Freight	1 60
	3 25
For re-shipment	30
Total	$3 55

Via Delaware and Raritan Canal.

TO NEW YORK.

Lehigh Canal	$ 71
Delaware Division Canal	43
Delaware and Raritan Canal	57
Freight	1 45
Towage	20
Total	$3 36

TO NEW BRUNSWICK.

Lehigh Canal	$ 71
Delaware Division Canal	43
Delaware and Raritan Canal	57
Freight	1 20
Total	$2 91

For Re-shipment—30 extra for shipping, and 10 cents. drawback.

Foreign and Provincial Freights.

September, 1869.

Foreign.	
Newcastle and Ports on Tyne	£15@£18 keel
Liverpool	15s. 17s. ton.
TO NEW YORK.	
Provincial.	
Sidney	$3 25
Lingan	3 25
Cow Bay	3 75
Port Caledonia	3 25
Little Glace Bay	3 25
TO BOSTON.	
Sydney	$3 75
Lingan	3 75
Cow Bay	3 25
Port Caledonia	3 00
Little Glace Bay	2 25

Towing Rates.

TO EASTERN PORTS.

	Per Ton.
To New Haven	$ 40
Bridgeport	40
Southport	40
Westport	40
Norwalk	40
Stamford	40
	Per Boat.
Greenwich	$70 00
Port Chester	80 00
Mamaroneck	70 00
Glen Cove	55 00
New Rochelle	55 00
East Chester	60 00
West Chester	30 00
White Stone	50 00
College Point	25 00
West Farms	25 00
Flushing	80 00
Harlem and Mott Haven	20 00
Port Morris	50 00
Ninety-first street and Astoria	16 00

Boats beyond Port Chester, with less than 200 tons, $20 per Boat.

TO RIVER PORTS.

Boats of 150—250 Tons.

	Per Ton.
To Manhattanville	9 cents.
Spuyten Duyvil	9 "
Yonkers	10 "
Hastings	12 "
Piermont	15 "
Dobbs' Ferry	15 "
Nyack	16 "
Tarrytown	17 "
Sing Sing	18 "
Croton Landing	19 "
Haverstraw	19 "
Verplanck's	20 "
Peekskill	20 "
West Point	21 "
Cold Spring	21 "
Newburgh	22 "
Poughkeepsie	22 "
Rondout	23 "

Boats of 100 Tons.

	Per Boat.
To Manhattanville, and Return	$12 00
Spuyten Duyvil	14 00
Yonkers	15 00
Sing Sing	25 00
Peekskill	25 00

METALS.

IRON.—Duty: Bars, 1 to 1¼ cents ₱ lb; Railroad, 70 cents ₱ 100 lbs.; Boiler and Plate, 1½ cents ₱ lb; Sheet, Band, Hoop, and Scroll, 1¾ to 1¾ cents ₱ lb; Pig, $ ₱ ton; Polished Sheet, 3 cents ₱ lb.

Pig, Scotch No. 1, ₱ ton	38 —@42 —
Pig, American, No. 1	40 00@41 00
Pig, American, No. 2	38 —@39 —
Pig, American, Forge	36 —@— —
Bar, Refined, English and American	5 —@— —
Bar, Swedes, assorted sizes (gold)	82 50@87 50

		Store Prices.
Bar, Swedes, ord'y sizes, less 5 ₱ ct.		— —@140 —
Bar, Refined	" "	95 —@100 —
Bar, Common	" "	87 50@ 90 —
Scroll	" "	120 —@180 —
Ovals and half-round	" "	120 —@145 —
Band	" "	120 —@ — —
Horse Shoe	" "	120 —@ — —
Rods, ⅜ to 3-16 inch	" "	100 —@155 —
Hoop	" "	125 —@180 —
Nail rod, less 5 ₱ ct.		— 8¼@— 9½
Sheet, Russia, as to Nos. (gold)		— 11 @— 12
Sheet, Single, D. and T. Common		— 5½@— 7
Sheet, Galvanized		List 15@25 ₱ cent. discount.
Rails, English (gold), ₱ ton		— — @56 50
Rails, American, at Works in Pa.		74 00 @76 00

STEEL.—Duty: Bars and ingots, valued at 7 cents ₱ lb or under, 2½ cents; over 7 cents and not above 11, 3 cents ₱ lb; over 11 cents, 2½ cents ₱ lb, and 10 ₱ cent ad val. (Store prices.)

English Cast (2d and 1st quality) ₱ lb	— 18	@— 22
English Spring (2d and 1st quality)	— 9	@— 11½
English Blister (2d and 1st quality)	— 11½	@— 19
English Machinery	— 12½	@— 15
English German (2d and 1st quality)	— 14	@— 16
American Blister "Black Diamond"	— 10½	@— 13
American, Cast, Tool do.	— 19	@— —
American, Spring, do.	— 10	@— 13
American Machinery, do.	— —	@— 13
American German, do.	— 10	@— 13

COPPER.—Duty: Pig, Bar, and Ingot, 5; old Copper cents ₱ lb; Manufactured, 45 per cent. ad val.

	All Cash.
Copper, New Sheathing, ₱ lb	— @— 32
Copper Bolts	— @— 33
Copper Braziers, 16oz. and over	33 @— 35
Copper Nails	38 @— 40
Copper, Old Sheathing, &c., clean	20 @— 21
Copper, Chili Pig	— @— —
Copper, American Ingot	22 @— 22¼
Yellow Metal, New Sheating	— @— 27
Yellow Metal Bolts	— @— 27
Yellow Metal Nails	— @— 27

LEAD.—Duty: Pig, $2 ₱ 100 lbs.; old Lead, 1½ cents ₱ lb; Pipe and Sheet, 2¼ cents ₱ lb.

Galena, ₱ 100 lbs	$— — @— —
Spanish (gold)	6 42½@6 50
German, do.	6 42½@6 50
English, do.	6 42½@6 87½
Bar (net)	— — @8 —7½
Pipe and Sheet (net)	— — @9 00

TIN.—Duty: Pig, Bars, and Blocks, 15 ₱ cent. ad val.; Plate and Sheets and Terne Plates, 25 ₱ cent. ad val.

	Gold ₱ lb.
Banca	39½@—
Straits	32¾@32½
English	31⅛@32

PLATES.

	Fair to Good Brands.	Gold.	Currency.
I. C. Charcoal, ₱ box	$8 25	@8 50	$11 75 @12 00
I. C. Coke	6 75	@7 37½	9 75 @10 75
Coke Terne	— —	@6 00	— — @ 8 50
Charcoal Terne	7 75	@8 25	11 25 @11 75

SPELTER.—Duty: In Pigs, Bars, and Plates, $1 50 ₱ 100 lb.

	Gold.
Plates, Foreign, ₱ 100 lbs.	$6 32½@6 37½
Plates, Domestic, ₱ lb.	— 9 @— 12

REMARKS.

IRON.—There is very little inquiry for either Scotch or American Pig; dealers do not seem disposed to purchase, except to supply immediate wants, at present prices, and holders refuse concessions; we have only to notice sales of 300 tons Glengarnock, part at $38, and 200 tons same, to arrive, on private terms. Wrought Scrap continues in active request at steady prices; 900 tons No. 1, from yard, were sold on terms we did not learn. The demand for new rails continues light; we quote English at $56 50, gold, and American $74@76, currency, at the works in Pennsylvania.

COPPER—Has been very dull, with but little business. The sales transpired do not exceed 300,000 lbs. Lake Superior at 21⅞ to 22c. This is also the quotation for Baltimore, which is in small stock. It is as difficult to buy Copper at the above rates, as it is to sell it. Some of the manufacturers have bought freely during the last four weeks, and for the moment the demand is limited.

The London market is quiet at £67 10s. for Chili Bars.

TIN.—No wholesale business. Straits is sold by the dealers at 32½c. Banca nominally 38c.; English, 31¾c. The latter has been in good demand in small lots.

The London market is quoted at 126s. for English, 128s. for Straits. The Dutch Trading Company sold on the 1st inst., in Amsterdam, 61,000 lbs. Banca at 74 florins; the price has since advanced to 76 florins.

SPELTER is in small stock, but also in limited demand. The quotation for Foreign is $6 37½, gold.

LEAD is steady demand, with decreased stock. Sales of 400 to 500 tons, part to arrive, at $6 50@6 87½, gold, for ordinary Foreign. Occasionally lots from ship are sold for less.

ZINC.—American, dry, 8¼c.; French do., 11¼@11¾c.; Metallic, 11½@12c. Duty, 2¼c.

MANGANESE.—Pembroke Oxide of Manganese, 4½c.; Powdered, 5c.

Mining Stocks.

The depressive influences of the recent Gold speculations, that drove Mining Stocks off Wall street, having passed away, they again appear before the public, and transactions at the New York Mining Stock Board are again resumed. Among the sales yesterday we notice Smith & Parmelee at $1 80@1 85; Quartz Hill, $1; and Grass Valley, 25c.

A glance through our list of quotations in another column reveals a material decline in prices. Mariposa is a noticeable exception to this assertion; it ruled higher to-day than it did before the recent panic.

Symonds' Fork is now quoted at 35@50; Quicksilver, 13½@13¾; Flint Steel River Copper, $4, and Tudor Lead, $4 25@5.

In Petroleum Stocks but few transactions are reported; 1,000 shares of United Petroleum Farms are said to have changed hands at 13c. Quotations are as follows:

	Bid.	Asked.
Bennehoff Petroleum	—	35
Brevoort	1 80	—
Buchanan Farm	—	50
Home Petroleum	3 50	6 00
Central	55	60
New York and Alleghany	68	—
National	50	1 75
United States	—	80
Northern Light	50	1 00
United Petroleum Farms	13	16
Rynd Farm	25	—

San Francisco Stock Market.

SAN FRANCISCO, October 6, 1869.

	1st Board.	2d Board.
Savage	43	46½
Crown Point	14¾	14
Yellow Jacket	37	38
Kentucky	1 67	—
Chollar Potosi	13¼	13¾
Gould & Curry	No sales	
Ophir	17¾	19¾
Alpha	No sales.	
Belcher	No sales.	
Imperial	35½	35
Hale & Norcross	1 23	1 24

DIVIDEND.—Chollar Potosi; $1 per share, coin. Payable October 8.

ASSESSMENT.—Empire Mill and Mining Company; $25 coin, per share. Payable immediately.

THE STATE OF THE MARKET.

Touching the condition of the San Francisco Stock Market, the San Francisco *Bulletin*, of September 28, says: "The mining stocks sold in the Stock Board are worth about $5,000,000 less now than they sold for nine months ago. Many brokers are 'lame,' in the pecuniary and professional sense, from operations in American and other stocks, which have fallen from high prices almost to nothing. This reduction in price may possibly have the good effect of driving speculators out of mining stocks, and of keeping the mines in the hands of those who will work them for their legitimate profits alone, and not in the alternating interests of bulls and bears."

London Weekly Metal Report.

LONDON, E. C., September 24, 1869.

There has been no new feature in the metal trade during the past week.

IRON.—Welsh bars in moderate demand, at £6 to £8 5s. Rails are still wanted, and full prices offered for next year's delivery; sellers shy. Trade in Staffordshire moderately active. Scotch pig iron: The final quotation is 52s. 8d. cash.

COPPER.—The market has been quiet, and little passing. We quote Chili bars £67 10s. to £68 cash; ore and regulus, 13s. 6d. to 13s. 9d. per unit. English Copper flat. Sellers of India sheets at £78. No business reported in Australian. Burra nominally £76; Wallaroo £76 10s.

TIN.—A large business has been done in Straits at £131 to £131 10s. cash, and £130 for arrival. Banca nominally £136. Billiton; business reported £131 10s. f.o.b. in Holland for spot parcels, and £130 ex. the August sale in Batavia. In Holland Banca is quoted 79fl. English tin firm at fixed rates.

TIN PLATES dull of sale.

LEAD quiet, but unaltered. L. B., £19 2s. 6d.; Good Sort English £19.

SPELTER.—No business reported. Price nominally £20 5s. English, Belgian and German £20.

VON DADELSZEN & NORTH.

Creosote Oil as a Source of Heat.

WE have it on the authority of our contemporary, the *Journal of the Society of Arts*, that Mr. W. D. Dorsett has brought out a system by which not the creosote oil but its distilled vapor, which is more powerful, is made to do the work of coal in heating iron plates to the heat necessary for bending them for ships' armor-plating and other similar purposes, where the advantages sought are a very high and at the same time so equal a temperature as that, while producing the required amount of ductility in the material to be operated upon, it shall not be deteriorated in its fibrous tenacity. For some two or three months Mr. Dorsett has been experimenting with his patent fuel in Woolwich Dockyard, and so satisfactorily to the Admiralty authorities, that they have instituted tests at Chatham, with a view to the preparation of the armor-plating of the Sultan armor-plated ship now building in that dockyard. The advantages may thus be shortly summed up as compared with coal: A greatly diminished cost and saving of time in producing the required heat of iron, as well as a saving of labor; an absence of refuse, and a surface altogether free from scale. As regards the effect of this new mode of heating upon the metal itself, one of the dockyard operatives declared, somewhat emphatically, that the commonest iron treated by it came out of the furnace as good as the best Low Moor. The apparatus is simple, and inexpensively applicable to existing coal-furnaces. It consists of a reservoir, from which the oil is pumped up as wanted into a receiver, where, by the application of heat, the vapor is generated, and this is passed through pipes into the furnace, and used as fuel in the ordinary way.—*London Review.*

Marble Quarrying in Vermont.

THE marble deposits of Vermont were known from the first settlement of the country. When the quarries were first worked, gunpowder was used in removing the blocks, but this injured the texture of the stone to such an extent that it was abandoned, and recourse was had to the old method of removing blocks, channeling; that is, cutting a narrow trench around a block and then loosening it from the bed below by means of wedges. These channels are sometimes cut by hand and sometimes by machinery. In the famous quarries of Carrara gunpowder is still used in throwing out the larger masses, which are then split up in the usual manner. This mode is more practicable there, as the quarries are situated upon mountain sides, and the blocks have only to be thrown down, while here after they are loosened they must be raised from 75 to 200 feet to the surface. With the use of gunpowder the waste is enormous. A large part of this waste might be utilized, as it would form a capital substitute for brick. The marble men here would be glad to get rid of it, and as one told me, when speaking of the subject, they would sell it for just what it would cost to put it upon the cars. A large part of it is in the shape of blocks that have been sawed out and then condemned.—*Cor.*

Lead.

THE tenacity of lead is much weakened by heating it to a temperature of 212 degrees. This will account for pipes bursting when hot water is passed through them, although they may have withstood the same pressure when cold water was forced through.

MINING COMPANIES AND STOCK QUOTATIONS.

GOLD AND SILVER COMPANIES.	SITUATION OF MINE.	SECRETARY AND PLACE OF BUSINESS.	CAPITAL.	PAR VALUE.	OFF'R'D.	ASKED.
Alameda Silver		A. Queran, 108 Wall st.	$2,000,000	$10 00		
Ada Elmore	South Boise, Idaho					
American Flag	Nevada District, Col.	P. P. Fullerton, 71 B'way.	600,000	10 00		
Atlantic and Pacific	Humboldt Co., Nevada.					
Bates and Baxter	Colorado			50 00		
Benton	Colorado	W. F. Drake, 15 Broad	500,000	5 00		
Briggs	Colorado	J. P. Davies, 19 Cliff	1,000,000	100 00		
Black Hawk	Colorado	C.T. Whittington, 48 Broad	2,500,000	100 00		
Bobtail	Colorado	J. Stanton, Jr., 25 Nassau	1,000,000			
Bullion Consolid'ed Gold	Colorado					
Burroughs Gold	Colorado					
Church Union Gold	California					
Consolidated Gregory	Colorado				1 3⁷	1 60
Combination Silver	Nevada			100 00		
Columbia Silver	Austin, Nevada	J. M. Brown, 155 B'way	5 000,000			
Commercial Silver		J. E. Smith, 26 Pine	3,000,000			
Corydon	Gilpin Co., Colorado.	J. Samuels, 40 B'way	500,000			
Downieville	Colorado		2,500,000	25 00		
Eagle Gold	Gold Dirt Dist., Col.	J. P. Davies, 19 Cliff	300,000	1 00		
Empire Gold and Silver	BodieBluff,MonoCo.Cal	H. K. Gates, 70 B'way	1,000,000			
Edgehill		A. Fullerton, 71 B'way	10,000,000			
Esperanza Silver		Ezra Clark, Jr., 13 William	400,000			
Fisk Gold		H. Johnson, 195 Fulton	500,000			
Forest Queen		E. B. Beet, 62 B'way	1,000,000			
Golconda Gold	Sherbrooke, C. E.	H. Adams, 71 Broadway	2,000,000			
Gregory	Colorado		1,250,000			
Gunnell Gold	Colorado	J. H. Rolston, 80 B'way	1,000,000	50 00		50
Gunnell Central	Colorado	C. B. Bostwick, 16 B'way	3,000,000	10 00		
Gold Rock		R. M. Lockwood, 93 Wall	400,000			
Great Western Gold		C. B. Bostwick, 16 B'way	200,000			
International Silver		J. W. Brazier, 26 Pine	600,000			
Hope Gold	Colorado		5,000,000			
Holman			2,000,000	25 00		
Kipp & Buell	Colorado		300,000			
Knickerbocker Gold		J. H. Rolston, 80 B'way	200,000	100 00		
La Crosse Gold	Nevada Dist., Col.	P. P. Fullerton, 71 B'way	1,000,000		10	20
Lander Hill T. & S.	Nevada	M.L.Catherwood,74 B'way	1,000,000			
Lewis Gold	Georgia		1,000,000			
Liberty Gold						
Manhattan Silver	Nevada	M. L. Ogden	400,000			
Maraposa common	California	Jas. H. Ferdon, 34 Wall	12,000,000		9¼	10
Mariposa preferred	California	do. do.			17½	18
Montana Gold		G. De Cordova	400,000		5	14
Montana M. L. & M. Co.	Montana	A. M. Hoyt, 22 William	250,000			
Montrose	Clear Creek Co., Col.	W. W. Perkins, 71 B'way	1,000,000			
New York Silver	Nevada	Thos. Sproull, 78 B'way	1,500,000			
New York and Austin	Nevada	E. R. Siccomb, 70 Wall	500,000			
New York and Owyhee	Owyhee Co., Idaho		1,000,000			
New York and Eldorado		G. H. Munroe, 10 Wall	2,000,000			
N. Y. & Montana M. & D.	Montana	F. A. Chapman, 20 Nassau	1,250,000			
N. Y. & Silver Peach	Nevada	R. C. Root, 74 B'way	2,000,000			
N. Y. & Utah P. & M.		W. H. Mailler, 108 Wall				
Ophir Gold	Comstock Lode, Nev.	L. C. Warner, 70 B'way	625,000			
Owyhee Gold		W. H. Smith, 43 Ex. Place	1,700,000			
Pahranagat Central	Nevada	J. E. Smith, 25 Pine	6,000,000			
Quartz Hill Gold		F. Bernard	2,500,000		90	1 00
Reese River Consol'd	Nevada	W. B. Ogden	6,000,000			
Rocky Mountain	Colorado	S. M. Pond, 70 B'way	500,000	10 00		
Rollins Gold		Thos. Bond, 132 B'way	600,000			
Sensenderfer	Colorado	H. A. Shewill, 19 Broad	1,000,000			
Silver Bend		F. W. Macy, 20 Nassau	1,500,000			
Silver Mt. Silver		H. A. Moen, 71 B'way	1,000,000			
Silver Peak & R. M.	Nevada	W. B. Ogden, 52 Wall	5,000,000			
Smith & Parmelee	Colorado	W. H. Hollister, 6 Broad	2,500,000	20 00	1 75	1 90
Social & Steptoe Con.		T. H. O'Connor, 24 Nassau	450,000			
Standard Gold		C. B. Bostwick, 169 B'way	500,000			
Stephenson Silver		A. S. Kellogg, 22 Pine	1,000,000			
Twin River Silver	Nevada	J. F. R. Hadden, 20 Nassau	800,000	100 00		
Texas Gold	Colorado		500,000	10 00		
Union Gold	Colorado	F. A. Potts, 110 B'way	1,200,000			
Wash. Mill & Silver	Nevada	W. W. Perkins, 71 B'way	300,000			
Wauba Yuma	Arizona	J. W. Silsby, 36 Pine	6,000,000			

COAL AND IRON COMPANIES.	SITUATION OF MINE.	SECRETARY AND PLACE OF BUSINESS.	CAPITAL.	PAR VALUE.	OFF'R'D.	ASKED.
American Coal Co		M. A. Myers, 119 B'way	$1,500,000	$25 00		
Ashburton Coal Co		J. T. Rollins, 41 Pine	2,500,000			
Block House Coal		D. B. Keeler, Jr., 43 Pine	1,000,000			
Brewster Iron		H. Robison, 165 B'way	150,000			
Broad Top Coal & Iron Co	Pennsylvania	B. Love	2,000,000			
Cameron Coal Co		J. A. Simpson, 40 B'way	2,500,000			
Carbon Hill Coal Co		J. Silsby, 36 Pine	1,000,000			
Central Coal		F. P. White, 111 B'way	2,000,000	100 00	60	65
Clifton Iron Co		P. H. Riordan, 34 Pine	1,250,000			
Columbia Iron		E. D. Webb, 77 Cedar	1,000,000			
Consolidation Coal	Maryland	J. S. Mackie, 71 B'way	5,000,000			
Crawford Coal		E. Clapp, Prest, 137 B'way	1,000,000			
Cumberland C. & I. Co.		E. Kisean, 90 B'way	5,000,000		25	
Derby Coal Co		W. S. Davison, 71 Broad				
Dover Coal and Iron Co.		L. Chase, 88 Wall				
Del. & Hudson Canal Co.			10,000,000	100 00		1 21
Ebervale Coal		G.L.Stout, Treas.,111 Br'y	500,000			
Fall River Bituminous		D. T. Blauvelt, 43 Pine	1,000,000			
Farrar Coal		C. H. Jones, 43 Pine	250,000			
Fisher Iron Co		M. Ellis, 19 William	100,000			
Hamp're & Balt. Coal		S. M. Pond, 70 B'way	500,000			
Iron Cliffs Co		C. J. Canda, 52 Wall	1,000,000			
Jackson Iron		G. P. Loyd, 119 B'way	300,000			
Kemble Coal & I. Co		R. A. Wight, 26 Ex. Place	300,000			
Keokuk Coal		J. F. Franklin, 112 B'way	100,000			
Lackawanna I. & C.	Pennsylvania	E. C. Lynde, 52 Wall	1,200,000			
Lewis Run C. & I. Co		C. A. Sanborn, 80 B'way	750,000			
Lykens Val. Coal Co		F. A. Platt, 13 William	800,000			
McKean Co. Bit. Coal Co.		J. H. Rolston, 80 B'way	1,500,000			
Lehigh & Susquehanna						
Mahanoy			400,000	100 00		
McNeal C. & I. Co		C. C. Godwin, 71 B'way	500,000			
Mount Riga Iron		G. M. Newton, 42 Cedar	300,000			
New Boston Coal		C. H. Ogden, 55 B'way	2,000,000			
N. Y. Con. C. & I. Co		A. T. Levine, 16 Wall				
N. Y. & Lehigh Coal		T. Simpson, 111 B'way	150,000			
Pacific Coal Co		G. Wrighton, 34 Wall				
Peekskill Iron Co		W. Murdock, 7 Nassau				
Pennsylvania Coal Co		C. H. Mead, 111 B'way	3,200,000	50 00		
Richmond Iron Co		C. H. Smith, 165 B'way	1,000,000			
Scotia Coal Co		I. N. Soper, 42 B'way	2,500,000			
Spring Mt. Coal		C. Runyon, 111 B'way	1,250,000			
Springfield & D'p Run C.		E. D. Webb, 77 Cedar	600,000			
Stout Coal Co		G. S. Comstock, 111 B'way	500,000			
Susquehanna & Wyoming		E. Potter, 40 B'way	1,000,000			
Tannerdale Coal		I. T. Ludlaw, 71 B'way	250,000			
Wash. Mutual Coal		M. C. Baker, 117 B'way	420,000			
West Point Iron Co		R. C. Brock, 110 B'way	500,000			
Wilkesbarre C. & I. Co		W. H. Tillinghast, 80 B'y.	3,400,000			
Wyoming Val. Coal Co		E. Potter, 40 B'way	1,000,000			

COPPER AND LEAD COMPANIES.	SITUATION OF MINE.	SECRETARY AND PLACE OF BUSINESS.	CAPITAL.	PAR VALUE.	OFF'R'D.	ASKED.
Anita Copper	California	J. A. Ferguson, 8 Wall				
Corinth Copper	Corinth, Vermont	S. H. Howard, 191 B'way	$500,000	25 00		
Davidson Copper						
Eagle Harbor Copper	Michigan	W. H. Smith, 43 Ex. Place	500,000	25 00		
Evergreen Bluff Copper	Michigan	F. W. Caper, 44 Ex. Place	500,000	25 00		
Globe Copper		R. K. Rickard, 19 Nassau	200,000			
Grand Portage Copper Co		A. S. Kellogg, 22 Pine	500,000			
Guymard Lead		Samuel Vernor, 38 Pine				
Hilton Copper		W. H. Smith, 43 Ex. Place	500,000			
Hope Copper		J. W. Davis, 19 Nassau	500,000			
Hudson River Copper	New York	T. Clarkson, 22 William	1,500,000			
Indiana Copper Co		I. M. Mills, 25 Nassau	500,000			
Isle Royale Copper	Michigan	F. W. Caper, 44 Ex. Place	1,000,000			
Keweenaw Copper	Michigan	F. W. Caper, 44 Ex. Place	500,000			
Lake Superi'r Silver Lead	Michigan	A. S. Kellogg, 22 Pine	1,000,000			
Omiga Copper	Michigan	S. Cooper, 7 Pine	500,000			
Ridge Copper	Michigan	J. L. Gardiner, Jr., 43 Ex. P.	500,000			
Rockland Copper	Michigan	A. Fullerton, 71 B'way	500,000			
St. Joseph Lead	Michigan	J. W. Jones, 6 Broad st.	1,000,000			
St. Marguret Copper		E. P. Sutton, 43 Pine	250,000			
Schoolcraft Copper		R. Walsh, 22 William	500,000			
Superior Copper	Michigan	A. Fullerton, 71 B'way	500,000			
Union Copper		A. S. Kellogg, 22 Pine	500,000			
Vermont Copper	Vermont	J. C. Ely, 191 B'way	500,000			
Wallkill Lead, ass'd		S. M. Pond, 70 B'way			12	17

MISCELLANEOUS.	SITUATION OF MINE.	SECRETARY AND PLACE OF BUSINESS.	CAPITAL.	PAR VALUE.	OFF'R'D.	ASKED.
American Zinc Co		W. E. Lawton, 19 Cliff	$1,000,000			
Bigelow Blue Stone Co		H. Bogardus, 14 Pine				
Clough Stone Co		C. P. Williams, 50 Beekman	500,000			
Covill B. L. M. & M'f. Co		C. R. Bostwick, 302 Pearl	250,000			
Manhattan Marble		H. K. Gates, 70 B'way	300,000			
N. Jersey Zinc Co	New Jersey	A. H. Farlin, 61 Maiden L'e.	1,500,000			

THE ENGINEERING AND MINING JOURNAL.

Special Notice to Subscribers.

THE subscription-books of THE ENGINEERING AND MINING JOURNAL are in course of revision, and every subscriber whose account is in arrears will be erased from the list. Those, therefore, who do not receive the paper after this number, will know the reason why.

The American Association for the Advancement of Science.

THERE is, perhaps, no association so little understood by the public, and even by the press, as the above. It is on account of this general ignorance in regard to it that so many absurd criticisms have appeared in print since the meeting in Salem, Mass. There is a complaint that it is not popular enough nor sufficiently permanent. To this it may be answered, that the Association was, by no means, founded for the popular diffusion of knowledge; this, of course, would require more than a single week in a whole year. The meeting of some two hundred of the prominent scientific men of this continent in a single city for so short a time, would be utterly useless for such a purpose. Those who feel the want of popular and continuous diffusion of knowledge, ought to found in the different cities local institutions of an entirely different character, where, by means of series of lectures, given free to all, by competent lecturers, the public might receive the needed scientific instruction. Such institutions would have, no doubt, the good wishes of all the members of the American Association for the Advancement of Science, as they clearly could not interfere with the object for which their Association has been formed, namely, the increase of our stock of scientific knowledge. The diffusion of it, the instruction of the masses, or the teaching of students, is a field of labor entirely foreign to the work of this Association. However, most of the members of it are privately or publicly engaged therein, from one end of the year to the other.

The Association holds its meetings with open doors, simply because scientific men are opposed to secrecy—not in the expectation that ignorant people who happen to drop in will learn anything, or be pleasantly entertained. Such persons have about as much right to expect this, as they have to obtain information when they drop in upon a congressional session at Washington. The members of the Association think as little of entertaining the public, as the members of congress do under like conditions. In the sessions of both of these bodies duties are to be performed that have little to do with audiences, namely, the bringing of facts and honest opinions before the body of the house.

It is not only the public for which certain subjects treated are uninteresting, but likewise those of the members themselves, who have not made a study of each special subjects. For this reason the division into sections has been adopted, in each of which cognate branches are discussed; for instance, in section A, Mathematics, Astronomy, Physics, and Chemistry; in section B, Geology and Natural History; in section C, Archeology and Ethnology; in section D, Microscopy. This latter division is, however, rather intended to save time, as without it the number of days the meeting might continue would be much greater. However expedient this arrangement is, it cannot be denied that in many cases subjects are discussed in different sections at the same time, so interesting to many members that they lament being unable to attend more than one section at a time.

The great benefit of these meetings, however, does not appear upon the surface. It is really the bringing together of men who are engaged in a common pursuit, love that pursuit, and have thus an opportunity for private conversation and consultation. Nearly all connected therewith profit greatly by this.

Two reasons exist for keeping up the migratory character of the meetings. One is, that no city should claim pre-eminence in scientific matters; it would excite jealousy, and make the Association less beloved elsewhere; besides, science is pre-eminently cosmopolitan. Another incidental reason is, that in the city where the meeting is held, the presence of a large number of the representatives of scientific research in the United States may stir up a slumbering appreciation for scientific matters. This has, in fact, been the case in nearly every place where the meetings have been held.

Before closing, we cannot refrain from remarking the difference in the character of the discussions in these meetings, from those of other kinds, in which the prominent men of different schools of politics or religion are brought together. The latter would hardly discuss for a week the subjects to which they devote themselves, and then separate with that perfect harmony, and leave behind in the place of their meeting, so favorable an impression as do the members of the American Association for the Advancement of Science.

Mr. Sutro's Speech.

WE regret that we cannot publish in full the vigorous address delivered by Adolph Sutro, Esq., at Virginia City, Nevada. The portions we have been obliged to omit consist mainly of severe criticisms upon the conduct of the Bank of California party, which Mr. Sutro believes to be the constant and malicious opponent of his great tunnel scheme. We have also struck out some passages, embodying information already published in our columns. Enough remains, however, in the half-dozen columns which we reprint, to present not only a strong argument in favor of the Sutro tunnel, but a picture of energy and perseverance on the part of its projector, seldom surpassed in the history of such great enterprises. Mr. Sutro's name has already become famous by reason of these qualities, and to them must now be added the reputation of a clear and effective speaker, as evinced both in the merits of the address itself and the results which it is said to have produced in the immediate subscription of a large sum of money, by the miners of the Comstock, to commence the Sutro tunnel.

The telegraph announces that work has already begun, and we rejoice to learn that such is the case. Certainly this measure, if successfully carried through, will do more to benefit the members of the Miners' League than all the conflicts they might inaugurate with the capitalists, over the question of wages. We do not know enough about the Bank of California to share Mr. Sutro's hostility to it, and we regard the proposed tunnel as a benefit as well to capital as to labor; but if hard words as well as hard work will help it along, his indignant eloquence may well be excused. The wounds it inflicts will all be healed and forgotten long before its beneficent results are exhausted.

The Fair.

In view of the great general excellence of the arrangements for the present Fair of the American Institute, it is to be regretted that any defects should mar its perfection. Candor compels us to say, however, that the restaurant is badly managed, and that the praise we have bestowed upon other departments has been given in spite of the protests of an ill-treated stomach. Starvation or indigestion may warp the judgment of the best of men; and we deem ourselves worthy of credit for overcoming a natural impulse, proceeding from such sources, to condemn right and left, until an outraged appetite should be avenged.

We humbly represent, moreover, that it is not pleasant for a gentleman of sensitive nature, with a charming lady upon his arm, for whom he entertains feelings of a profound and tender character, to be served, upon entering the fair, with a stunning hand-bill, inquiring in the loudest kind of type, "*Are You Ruptured?*" and proceeding to explain, with shocking clearness, the virtues of somebody's patent truss. The enterprising truss-maker succeeds, perhaps, in extracting an indignant denial or a feeble "*Not Yet*" from his victim; but he certainly will never sell a truss that way; and he may get ruptured himself some day, if he don't look out. If he cannot see the matter in this light, however, it is the duty of the managers to explain to him that his double-capped inquiry is a disgusting impertinence; that people do not wish to be trussed before their time; and that his mechanism must recommend itself more quietly to the substantial and trussed-worthy patrons who stand in need of it.

Brückner's Cylinder.

IN another part of this paper will be found a full description of Brückner's process for the treatment of refractory silver ores. It is claimed that by this method the cost of treatment will not exceed, in a mill with the capacity of twenty tons daily, $20 currency per ton; whereas the average custom price hitherto charged in Nevada and elsewhere has been $40 gold. Mr. Brückner's cylinders are constantly at work in Colorado.

Boring Tools.

A CORRESPONDENT desires to have the names and addresses of the principal manufacturers of tools for boring artesian and petroleum wells with their catalogues, if they issue any. As our advertising columns do not contain any of these names, we call attention to the matter editorially, in order that those concerned may make themselves known to us.

Gas Blasting.

THE *Advertiser and Times*, Oswego, N. Y., says: "We saw a novel experiment involving the explosive power of gas. In the new tank excavation, now in a forward state, at the gas works in this city, an old well had been pumped out and then filled up, after leaving an aperture beneath. Into this space a limited quantity of gas was introduced from the gas pipe, sufficient to form an explosive compound with the air in the covered well. A match trigger touched off the mine, when a general upheaving of the surrounding earth took place, loosening up the soil and making easier digging."

Bitumen in the Manufacture of Gas.

BITUMEN, such as that which is brought from Trinidad and other localities, when added to coal, in the proportion of one part to three, it is asserted, increases the illuminating power of the gas produced, very appreciably; and experiments at the Woolwich Arsenal Gas Works (Eng.), with this mixture, have recently furnished twenty-candle gas, at the rate of 9,856 feet to the ton.

The Wood & Mann Steam Engine Company.

IN former numbers of this JOURNAL we have dwelt at considerable length upon that form of engine known as the adjustable cut-off, and upon the special advantages of this peculiar manner of using steam. During a recent visit to the central part of this State we had the pleasure of going over the establishment of one of the most enterprising of the numerous firms that are manufacturing this particular kind of engine, and on the next page we present a series of illustrations, which give a very fair idea of the character and extent of the works referred to. The various shops, etc., cover a space of nearly two acres, and are fully provided with all the facilities required for carrying on extensive operations, while the location, which is within a short distance of the railroad, is admirably adapted to secure those advantages which every large business requires. In addition to the manufacture of steam engines of various styles and sizes, adapted to manufacturing, agriculture and miscellaneous purposes, the WOOD & MANN STEAM ENGINE COMPANY turn out a large number of pumps, grist-mills, sugarcane-mills, steam engines and boilers, circular, mulay and gang sawmills, heavy and light castings, rolling-mill work, mill gearing, grafting, pullies, etc., of all kinds.

Having expressed a desire to go over the establishment, we were taken to the draughting room, an apartment well furnished with all the instruments necessary for producing on paper the most perfect *fac-similes* of the objects that are to be made. These drawings are placed before the workmen, who are thus guided, not by vague descriptions, but by accurate representations. If we were to follow the course of one of these drawings it would probably take us to the pattern shop, a room well fitted up with saws, lathes, benches, etc. From this shop the pattern would probably pass to the foundry, where, after being moulded in sand, it would be cast in iron, and, however large, would be readily handled by means of the cranes and other appliances which have been liberally provided. If the casting be large it will probably be taken to the large planer, if a straight surface be required; or to one of the large lathes, if it be designed to give it a circular form. One of these lathes is designed for objects of great diameter, and will take in anything that is less than eight yards across; the other is not adapted to receive objects whose diameter is unusual, but is capable of containing shafts of great length. If, however, the casting be small, it will probably be taken to one o the finishing shops, where, by means of lathes, planers, drilling machines, slotting machines, or the good old plan of the hammer, chisel and file, it is soon brought to the required shape, size and finish.

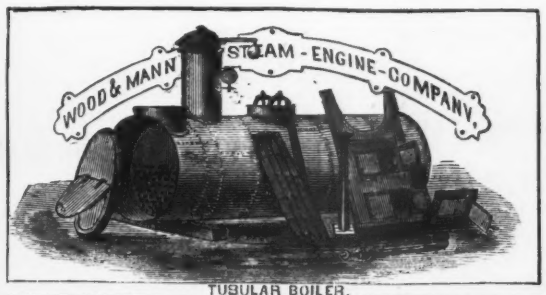
If the object requires to be made of wrought instead of cast iron, the blacksmith shop will afford the requisite conveniences, and in one room of this department will be found a Dudgeon steam-hammer capable of dealing with the largest and most refractory masses. In the boiler shop will be found all the tools required for cutting the iron, bringing it into shape, and converting it into substantial boilers.

In going over the establishment, one of the features that impressed us most forcibly was the great neatness, order and cleanliness everywhere apparent. No small tools were seen out of place, and still less were the large tools allowed to become unsightly and inefficient from deposits of dirt and gummed oil. Everything was clean, and everything worked smoothly. Nor does this apply only to the inanimate occupants of the building. The operators seemed to be equally well cared for, and pleasant light and wholesome air testified that the managers appreciate the fact that first-class work can be produced only under pleasant conditions, and by men whose brains are not muddled by foul air.

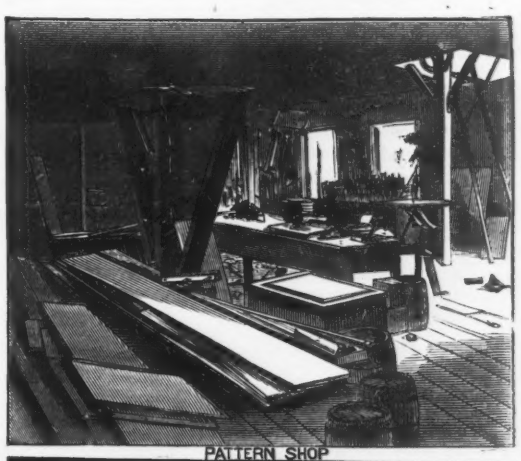
It was said by one of our most successful men, and few will dispute the dictum, that the way to succeed is first to get a good thing, and then let the public know that you have it. And this seems to have been precisely the course taken by the WOOD & MANN STEAM ENGINE COMPANY. Setting out with a firm resolution to succeed, and possessing that determined energy, pluck, and faith which characterizes the young, they first of all, with great care, fixed upon the size, style, and construction of the objects which they intended to produce. Resolved to turn out no inferior work, each article embodied the best features of its class, and then the very best tools were procured, so that the result might be realized. It mattered not that good work has sometimes been done with poor tools; the better the tools the better the work, and the work now demanded must be of the best. But even good plans, good materials, and good tools are not the only condition necessary to turn out good work. The best of tools will turn out inferior work, if placed in unskilful hands, and therefore great care was exercised in the choice of the operatives. An inferior hand, however well he might be recommended, stood no chance of retaining a position in the establishment. The foremen in each department were chosen, not from favoritism or by chance, but from a full knowledge of their ability to perform the duties required of them. And th usa bond was taken of fate, and assurance rendered doubly sure.

But even all this would have failed to secure the ultimate object—commercial success—if other means had not been employed at the same time. Engines of the best design and most exquisite finish might have lain rusting in the works; and saw-mills, the cheapest in price and best in workmanship, might have gone to pieces on the ground from sheer old age, if the world at large had not been apprised that such things were for sale by the WOOD & MANN STEAM ENGINE COMPANY, Utica, N. Y. So the next step was to advertise, and they did it well. The seeker for petroleum by the creeks of Pennsylvania heard of the Wood & Mann portable engines; the lumbermen in Maine, Michigan, Canada, in a word, wherever timber grew, heard of their saw-mills; and manufacturers, whether in New York or Florida, Massachusetts or California, heard the praise of their stationary engines. To secure this result they advertised in every paper in the land that was likely to reach their customers. Of course, there are many papers in which their name never appeared, for it would be folly to advertise a Democratic caucus in a Republican paper, or a summons to a Christian in a Jewish journal. But wherever a paper could be found that circulated largely among the manufacturing classes, they were sure to claim a share of its space, Not content with this, they even went so far as to start a spicy and interesting paper of their own, and the *Mannfacturers' and Lumbermen's Journal* has conveyed to thousands a knowledge of their location and facilities for doing business. The consequence of all this might have easily been foreseen. They had a good thing, and the public were told that they had it. If the goods had been poor, all the advertising in the world would not have sold them; if they had not advertised, their productions might have been ever so good, and they would not have found a market. As it is, however, they are crowded with orders, even in the dullest times, and success—a success which has been justly earned—has been the reward of their prudence, intelligence, and let us add, *pluck*.

BOILER SHOP



TUBULAR BOILER.



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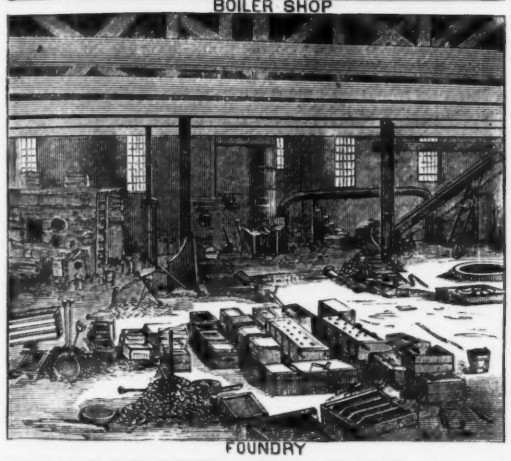

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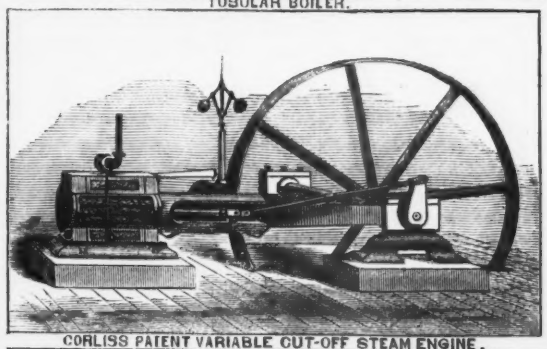

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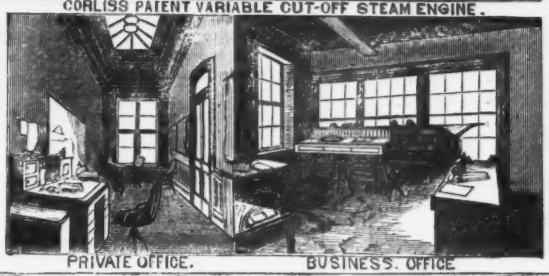

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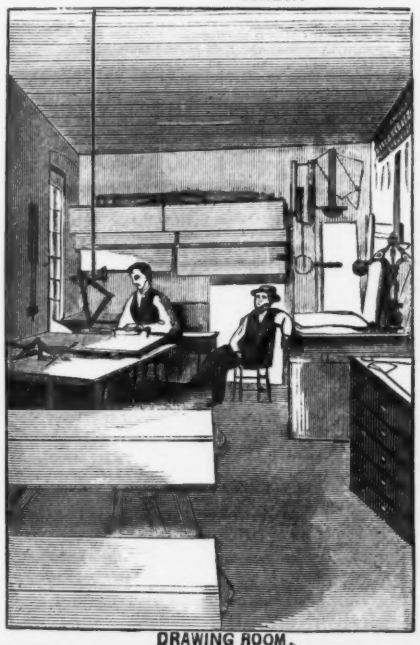

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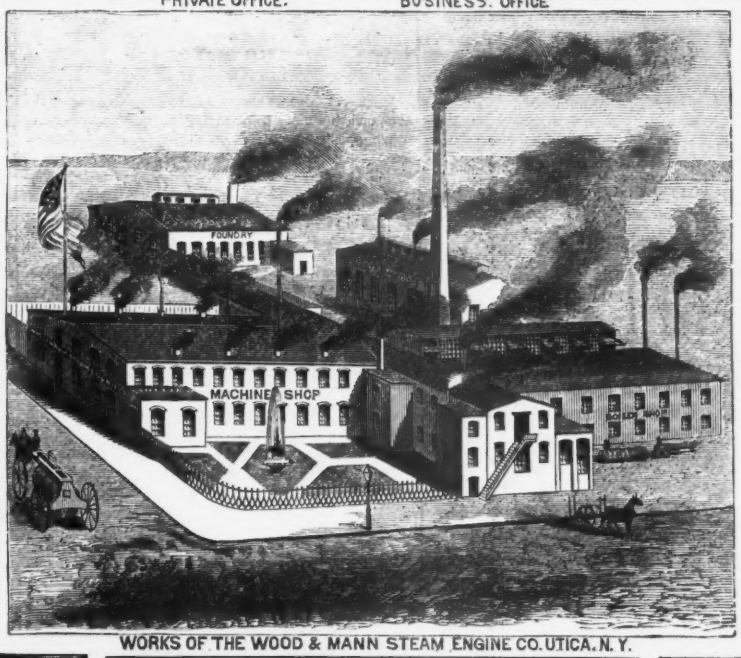

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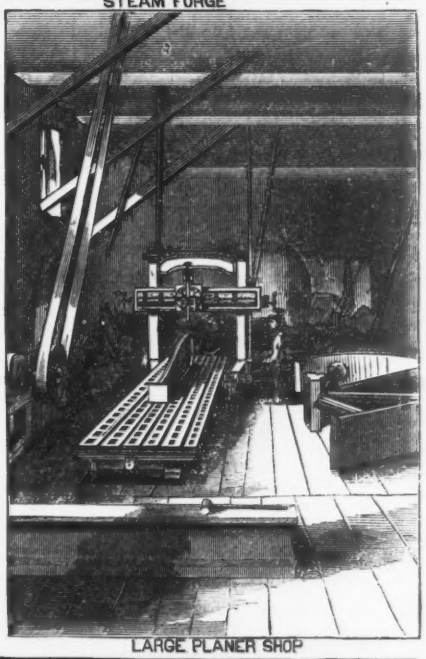

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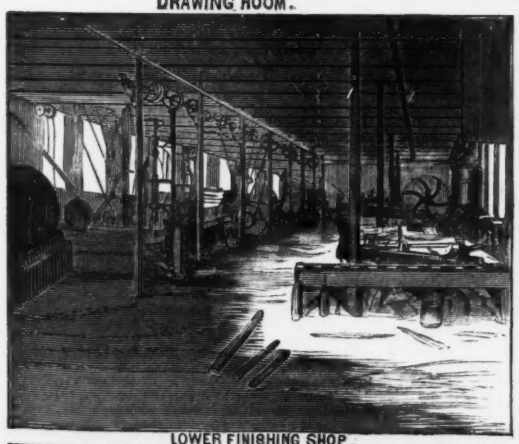

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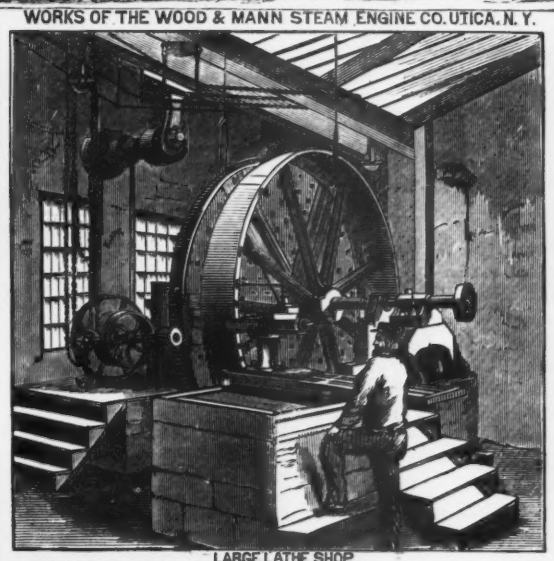

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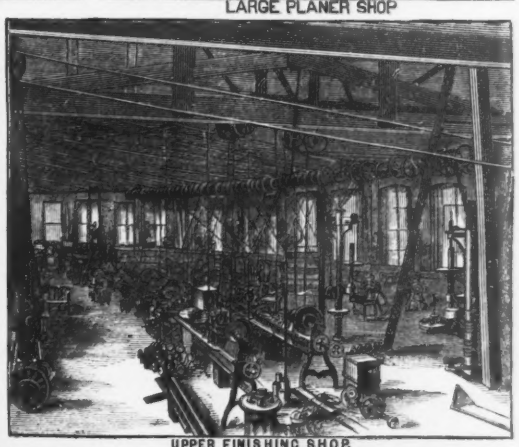

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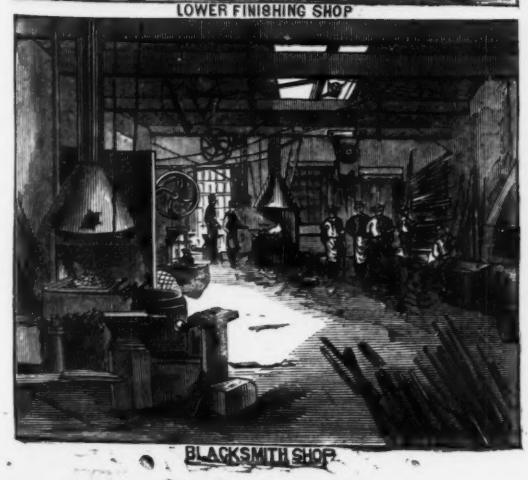

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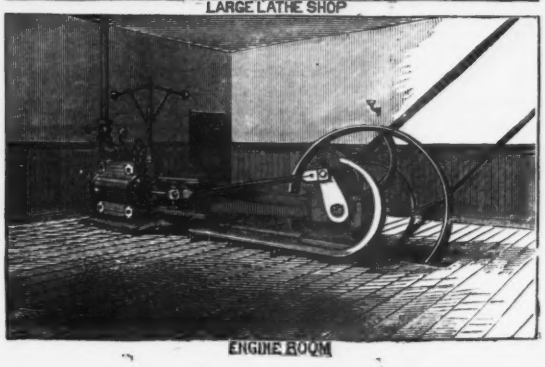

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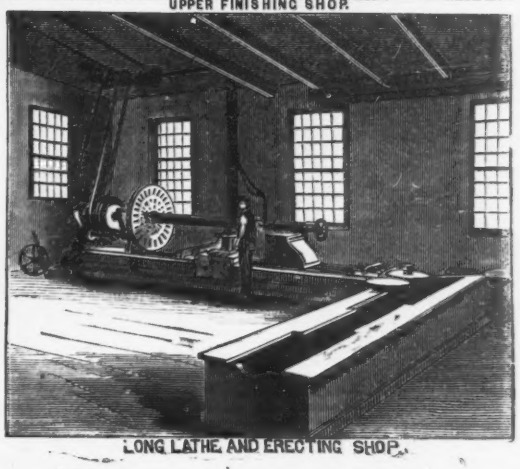

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" Its velocity and force
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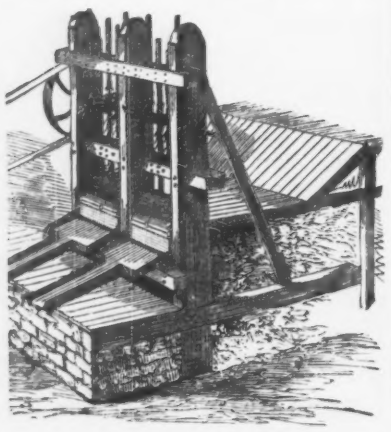

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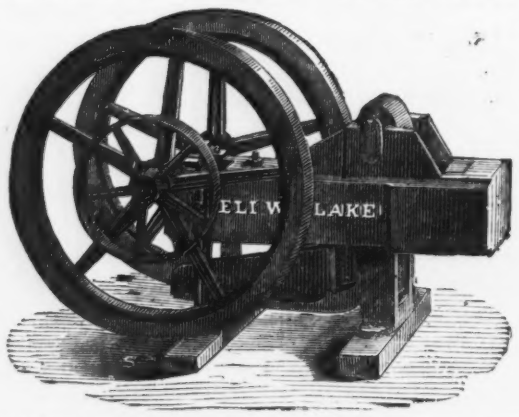

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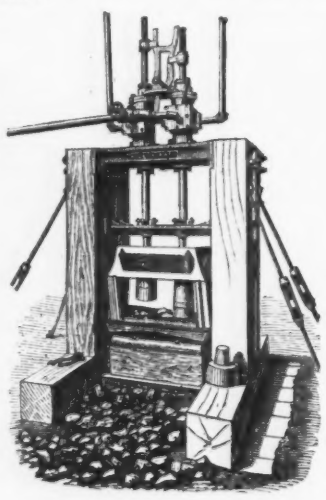

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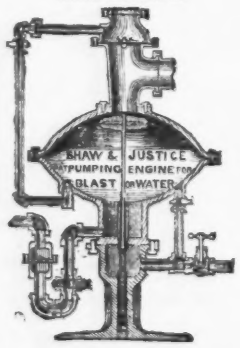

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ONE-HALF OF THE POWER and PRICE SAVED, and EFFICIENCY GUARANTEED. aug-3

DESULPHURIZING ELECTRO-MINING COMPANY, SYRACUSE, N. Y.

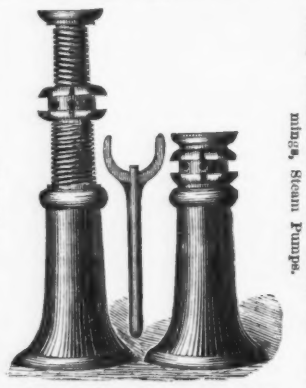
President.....Hon. T. T. DAVIS.
Vice President.....JAMES P. HASKINS.
Superintendent.....J. H. RAE, M. D.

The Superintendent, Dr. Rae, will go to Colorado to erect works early in September. There is no stock for sale. This is a legitimate Company, that propose to spend their own money to determine the commercial value of the several Patents issued to Dr Rae.
sept21-tf

ALBERT BRIDGES,

MANUFACTURER AND DEALER IN
Railway and Mining Supplies and Machinery.

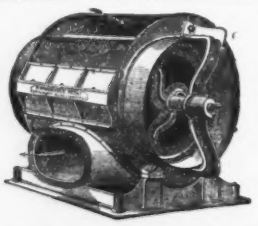
Hot and Cold Punched Nuts, Bolts, Lag Screws and Washers.

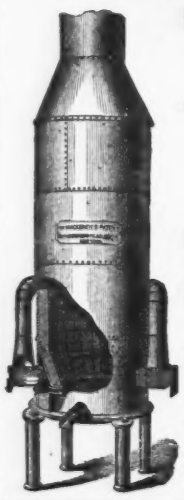


Belting, Packing Hose, Rubber Springs, Car Trimmings, Steam Pumps.

Ball's Patent Telescope Jack.

NO. 46 CORTLANDT STREET,
P. O. Box, 2843. NEW YORK.
Aug 31-1y





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PROPRIETORS AND

MANUFACTURERS

OF THE

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BLOWER and CUPOLA and SMELTING FURNACE.

Also. Mackensie's Patent GAS EXHAUSTER and COMPENSATOR. Address

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Pneumatic Rock Drill

Is now in successful working operation in New York, Chicago, Jersey City: also at the Hoosac Tunnel (Mass.), Lake Superior, Colorado, and Nova Scotia Mines, Union Pacific and Boston and Hartford Railroads; also in deepening the beds of the Illinois and Michigan Canals, and Des Moines Rapids, and numerous other localities.

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General Agents for the United States and Europe.
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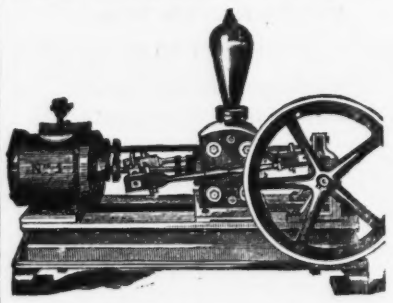
THE WOODWARD

Steam Pump Manufacturing Company.

MANUFACTURERS OF THE
WOODWARD PATENT IMPROVED SAFETY
Steam Pump and Fire Engine.



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Also dealers in WROUGHT IRON PIPE, BOILER TUBES, etc. Hotels, Churches, Factories, and Public Buildings, heated by Steam, Low Pressure.

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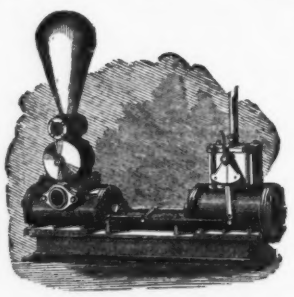

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Patented in England, Belgium and France. Send for circular. feb-13-1y

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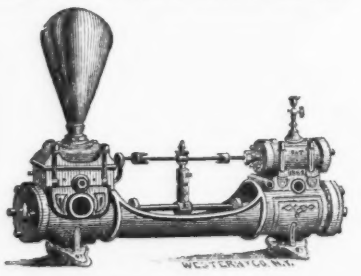

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Air Pumps, Blowing Engines, Hydraulic Pressure Pumps, New Locomotive Pumps, Fire Pumps, Boiler, Feed, Marine, Drainage, Sugar-work, Brewery, Distillery, Oil and Wrecking Pumps.

Improved Horizontal and Vertical
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(Working with Plungers, and especially arranged for pumping water containing dirty or gritty matter.)

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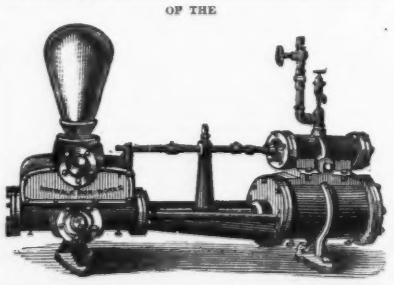

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(Patented in the United States, France, England and Belgium.)

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STEAM AND BLOWING ENGINES,

Pumping Engines for Water Works, Horizontal and Tumbling Beam Engines, Mining, Wrecking, and Supply Pumps.

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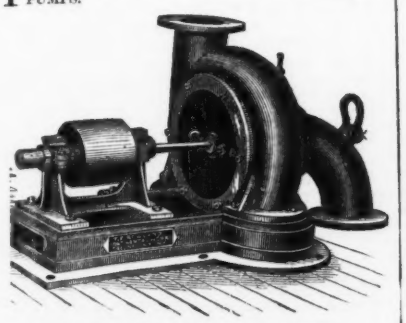

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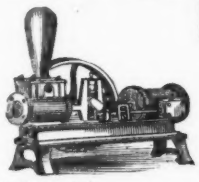

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Steam Pumping Engines, Single and Duplex, Worthington's Patent, for all purposes, such as Water Works Engines, Condensing or Non-condensing; Air and Circulating Pumps, for Marine Engines; Blowing Engines; Vacuum Pumps, Stationary and Portable Steam Fire Engines; Boiler Feed Pumps, Wrecking Pumps,

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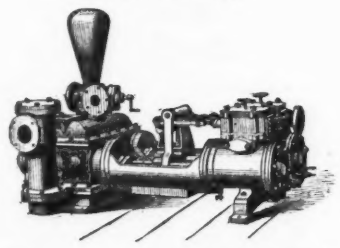

Water Meters, Oil Meters; Water Pressure Engines; Stamp Mills for Gold, Silver and Copper Ore; Eaton's Patent Amalgamators for Gold and Silver; Steam and Gas Pipe, Valves, Fittings, etc. Iron and Brass Castings.

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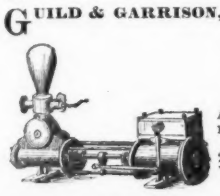

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And all the various connections. For sale at the STEAM PUMP WORKS, 26, 28 and 30 First street, Williamsburgh, N. Y.

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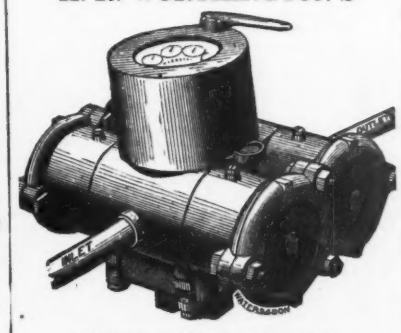

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This Meter is also Used for the Measurement of Oil.

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with such ease and certainty of motion as to offer no appreciable obstructions to the flow of water in the pipes to which it is connected, as it runs and registers upon three inches head, or when delivering the smallest stream. These qualities, with its low cost, have caused its extensive adoption by corporations and individuals, in many of our larger cities.

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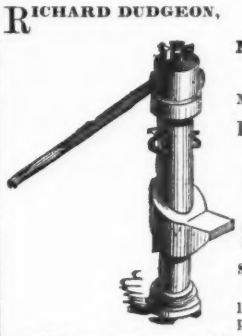

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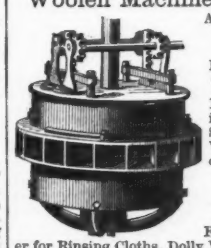

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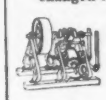

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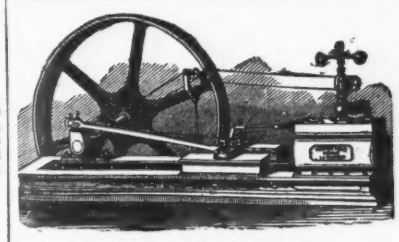

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Manufacturing Company of Penn.

This Company is now prepared to furnish

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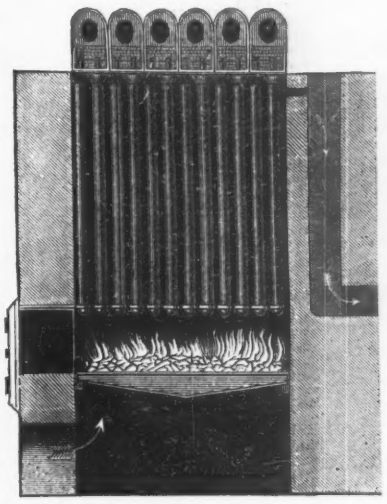

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Of any power required, upon two weeks' notice. They have been introduced in this city and thoroughly tested, with most satisfactory results, and are sold under Guarantee of Absolute

Safety from Destructive Explosion.

They are cheaper in first cost and in expense of erection, more economical in fuel, durable and convenient in use, than any other apparatus for generating steam. For Mining purposes it is unequalled, owing to the facility with which it can be transported and erected.

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SAFETY BOILER.

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Also,

EMERSON'S PATENT PERFORATED CIRCULAR AND LONG SAWS,

(All Gumming avoided,) and

EMERSON'S PATENT ADJUSTABLE SWAGE,

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Summer Arrangement.

On and after Monday, July 12, 1869, Passenger Trains on the Lehigh & Susquehanna Railroad will run as follows:

DOWN TRAINS.

	No. 1. A.M.	No. 3. A.M.	No. 5 P.M.	No 7. P.M.
Leave Green Ridge	9:05	7:00	1:00	5:15
Scranton	9:10	7:05	1:05	5:20
Pittston	9:36	7:35	1:35	5:52
Wilkesbarre	10:00	8:00	2:00	6:17
White Haven	11:23	A.M.	P.M.	P.M.
				No. 9.
Mauch Chunk	12:00 / 1:03			A.M. 6:50
Catasauqua	2:01			8:04
Allentown	2:10			8:15
Bethlehem	2:20			8:30
Easton	2:48			9:05
Phillipsburg	2:52			9:10
Philadelphia	4:45			A.M.
Arrive New York	6:30 C.R.R. / 9:40 M. & E.R.R.			P.M.

UP OR NORTHWARD TRAINS:

	No. 2. P.M.			No. 10 A.M.
Leave New York	9:00 C. R. R. / 8:30 M. & E. R. R.			
Philadelphia	9:45			
Phillipsburg	11:50			7:00
Easton	11:55			7:04
Bethlehem	12:23			7:36
Allentown	12:36			7:50
Catasauqua	12:53			8:04
Mauch Chunk	2:05			9:20
		No. 4.	No. 6.	No. 8.
White Haven	3:23	A.M.	P.M.	P.M.
Wilkesbarre	5:00	8:30	2:25	6:45
Pittston	5:25	8:55	2:50	7:10
Scranton	5:56	9:26	3:20	7:40
Arrive Green Ridge	6:00	9:30	3:25	7:45
	P.M.	A.M.	P.M.	P.M.

Connections.

DOWN TRAIN No. 1, makes close connection at Penn Haven with Lehigh Valley Railroad, for Beaver Meadow, Hazleton and Mahanoy City.

DEL. & HUDSON CANAL CO., R.R.—Up trains Nos. 4 & 6, and down trains Nos. 1 and 7 connect at Green Ridge with trains on Delaware & Hudson Railroad, to and from Carbondale.

NORTH PENNA. R.R.—Down train No. 1, and up train No. 0 connects at Bethlehem with trains on North Pennsylvania R.R, arriving at Philadelphia at 4:45 P.M. Returning, leave Philadelphia for Scranton, Wilkesbarre and Mauch Chunk at 9:45 A.M.

LEHIGH & LACKAWANNA R.R.—Down train Nos. 1 and 0, and up train Nos. 2 and 0 connect at Bethlehem with Lehigh & Lackawanna R. R. for Bath and Chapman Quarries. Returning leaves Bath at 7:00 A.M.

MORRIS & ESSEX R. R.—Down train No. 1 and 0 connect at Easton with Morris & Essex Railroad for Newark and New York. Returning leave New York (Barclay street,) for Scranton, Wilkesbarre and Mauch Chunk at 8:00.

CENTRAL RAILROAD OF NEW JERSEY.—Down trains Nos. 1 and 9 connect at Phillipsburg with trains for New York. Returning, leave New York (foot of Liberty street,) for Scranton, Wilkesbarre and Mauch Chunk at 9:00 A. M.

BELVIDERE & DELAWARE R.R.—Down train No. 0 and up train No. 2 connect at Phillipsburg with Belvidere & Delaware Railroad to and from Trenton and Philadelphia.

MENDES COHEN,
Superintendent.

LEHIGH VALLEY RAILROAD.—ON AND after June 1, 1869, trains on the Lehigh Valley Railroad will run as follows:

DOWN TRAINS.

	A.M	P.M.
Leave Tunkhannock	6.20	
L. & B. Junction	7 30	1.15
Pittston	7.40	1.25
Wilkesbarre	8.00	1.45
White Haven	9 25	3.08
Mauch Chunk	10.35	4.20
Allentown	11.43	5.50
Bethlehem	11.55	6.05
	P.M.	
Easton	12.25	6.35
Philadelphia	2.10	8.35
Arrive New York	3.50	9.00

UP TRAINS.

	P. M.	M.
Leave New York	6.50	12.00
		P. M.
Philadelphia	7.45	1.45
Easton	10.00	3.25
Bethlehem	10.30	4.00
Allentown	10.45	4.20
	M.	
Mauch Chunk	12.00	5.45
	P. M.	
White Haven	1.32	7.18
Wilkesbarre	2.50	8.35
Pittston	3.10	8.55
L. & B. Junction	3.20	9.05
Arrive Tunkhannock	4.30	

☞ No change of cars between Scranton and New York, or between Scranton and Philadelphia.

ROBERT H. SAYRE, Sup't and Eng.
H. STANLEY GOODWIN, Ass't Gen. Supt.
June 1, 1869.

DELAWARE, LACKAWANNA & WESTERN R. R.—Morris & Essex Division.

Summer Arrangement,

Commencing Monday, April 5, 1869, and running on the following time until further notice.

	L. and Express. A. M.	Scranton. Mail. A.M.	Scranton, Express. P. M.
Leave Easton	6.55	11.30	5.30
Washington	7.28	12.10	6.15
Hackettstown	7.48	12.36	6.45
Dover	8.30	1.24	7.30
Rockaway		1.34	
Morristown	9.00	2.00	8.00
Orange		2.50	8 50
Newark	9.50	3.00	9.00
Arrive New York	10.25	3 35	9.40
	A.M.	P. M.	P.M.
RETURNING.			
	P. M.	A. M.	A.M.
Leave New York	4.00	7.00	8.30
Newark	4.40	9.05	7.40
Orange			7.53
Morristown	5.33	10.00	8.45
Rockaway			9.09
Dover	6.00		9.20
Hackettstown	6.42	11.05	10.08
Washington	7.02	11.25	10.33
Arrive Easton	7.35	11.57	11.10

Connections.

At Washington, with Delaware, Lackawanna & Western Railroad, for Water Gap, Stroudsburg, Wilkesbarre, Carbondale, Scranton and Great Bend.

At Easton, with Lehigh Valley and Lehigh & Susquehanna Railroads for Bethlehem, Allentown, and Mauch Chunk.

S. SCHOCH,
Ass't Superintendent.
R. A. HENRY,
Gen. Passenger Agent.
Hoboken, N. J., April 21, 1869.

RAILROADS.

READING RAILROAD.—GREAT TRUNK LINE from Philadelphia to the interior of Pennsylvania, the Schuylkill, Susquehanna, Cumberland and Wyoming Valleys, the North, Northwest, and the Canadas.

Summer Arrangement of Passenger Trains, July 12, 1869.

Leaving the Company's Depot, Thirteenth and Callowhill streets, Philadelphia, at the following hours:

MORNING ACCOMMODATION.

At 7.30 A.M. for Reading and all intermediate stations and Allentown. Returning, leave Reading at 6.30 P. M., arrive in Philadelphia 9.15 P.M.

MORNING EXPRESS.

At 8.15 A. M., for Reading, Lebanon, Harrisburg, Pottsville, Pinegrove, Tamaqua, Sunbury, Williamsport, Elmira, Rochester, Niagara Falls, Buffalo, Wilkesbarre, Pittston, York, Carlisle, Chambersburg, Hagerstown, &c.

The 7.30 A. M. train connects at READING with East Pennsylvania Railroad trains for Allentown, &c., and the 8.15 A.M. train connects with the Lebanon Valley train for Harrisburg, &c.; at PORT CLINTON with the Catawissa Railroad trains for Williamsport, Lock Haven, Elmira, &c.; at HARRISBURG with Northern Central, Cumberland Valley, and Schuylkill and Susquehanna trains for Northumberland, Williamsport, York, Chambersburg, Pinegrove, &c.

AFTERNOON EXPRESS

Leaves Philadelphia at 3.30 P.M. for Reading, Pottsville, Harrisburg, &c., connecting with Reading and Columbia Railroad trains for Columbia, &c.

POTTSTOWN ACCOMMODATION

Leaves Pottstown at 6.25 A.M., stopping at intermediate stations; arrives in Philadelphia at 8.40 A. M. Returning, leaves Philadelphia at 4.30 P. M., arriving in Pottstown at 6.40 P.M.

READING ACCOMMODATION

Leaves Reading at 7.30 A.M., stopping at all way stations; arrives in Philadelphia at 10.15 A.M.

Returning, leaves Philadelphia at 5.15 P. M.; arrives in Reading at 8.00 P.M., and connects with Market Train for Pottsville.

Trains for Philadelphia leave Harrisburg at 8.10 A.M. and Pottsville at 8.45 A.M., arriving in Philadelphia at 1.00 P.M. Afternoon trains leave Harrisburg at 2.05 P. M. and Pottsville at 2.45 P.M., arriving at Philadelphia at 6.45 P. M.

HARRISBURG ACCOMMODATION

Leaves Reading at 7.15 A.M. and Harrisburg at 4.10 P.M. Connecting at Reading with Afternoon Accommodation south at 6.30 P.M., arriving in Philadelphia at 9.15 P. M.

MARKET TRAIN, with a passenger car attached, leaves Philadelphia at 12.45 P. M. for Pottsville and all way stations; leaves Pottsville at 5.40 A.M., connecting at Reading with Accommodation Train for Philadelphia and all way stations.

All the above trains run daily, Sundays excepted.

Sunday trains leave Pottsville at 8.00 A.M. and Philadelphia at 3.15 P. M.

Leave Philadelphia for Reading at 8.00 A.M. Returning from Reading at 4.25 P.M.

CHESTER VALLEY RAILROAD.

Passengers for Downingtown and intermediate points take the 7.30 A.M., 12.45 and 4.30 P.M. trains from Philadelphia, returning from Downingtown at 6.10 A.M., 1.00 and 5.45 P.M.

PERKIOMEN RAILROAD.

Passengers for Skippack take 7.30 A M., 4 30 and 5.15 P.M. trains from Philadelphia; returning from Skippack at 6.15, 8.15. A. M. and 1.00 P. M. Stage lines for various points in Perkiomen Valley connect with trains at Collegeville and Skippack.

NEW YORK EXPRESS, FOR PITTSBURG AND THE WEST.

Leaves New York at 9.00 A. M. and 5.00 and 8.00 P.M., passing Reading at 1.05 A.M., and 1.50 and 10.19 P.M., and connecting at Harrisburg with Pennsylvania and Northern Central Railroad Express Trains for Pittsburg, Chicago, Williamsport, Elmira, Baltimore, &c

Returning, Express Train leaves Harrisburg on arrival of Pennsylvania Express from Pittsburg at 2.35 and 5.20 A. M., 10.55 P. M. passing Reading at 4.30 and 7.05 A. M. and 12.50 P. M.; and arriving at New York at 11.00 A. M. and 12.20 and 5.00 P. M. Sleeping cars accompany these trains through between Jersey City and Pittsburg without change.

A mail train for New York leaves Harrisburg at 8.10 A.M. and 2.05 P. M. Mail train for Harrisburg leaves New York at 12 noon.

SCHUYLKILL VALLEY RAILROAD.

Trains leave Pottsville at 6.30 and 11.30 A. M. and 6 40 P.M., returning from Tamaqua at 8.35 A. M. and 2.15 and 4.15 P.M.

SCHUYLKILL AND SUSQUEHANNA RAILROAD.

Trains leave Auburn at 6.25 A. M. for Pinegrove and Harrisburg, and at 12.10 P.M. for Pinegrove and Tremont; returning from Harrisburg at 6.20 P. M., and from Tremont at 6.45 A.M. and 7.40 P.M.

CENTRAL RAILROAD OF NEW JERSEY.—Passenger and Freight Depot in New York, foot of Liberty street; connects at Hampton Junction with the Delaware, Lackawanna and Western Railroad, and at Easton with the Lehigh Valley Railroad and its connections, forming a direct line to Pittsburgh and the West without change of cars.

ALLENTOWN LINE TO THE WEST.

Three Express Trains to the West, except Sundays, when one train in the evening.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, &c., with but one change of cars.

Silver Palace cars through from New York to Chicago.

SUMMER ARRANGEMENT.

Commencing August 16, 1869.—Leave New York as follows:

6.55 A. M.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahanoy City, Tukhannock, 7.15 A. M.—For Somerville.

8.30 A. M.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend,

9 A. M.—WESTERN EXPRESS.—For Easton, Allentown, Harrisburg and the West, without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

12 M.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litiz, Pottsville, Scranton, Harrisburg, &c.

3.30 P. M.—For Easton, Allentown, Mauch Chunk and Belvidere.

4.30 P. M.—For Somerville.

5.00 P. M.—CINCINNATI EXPRESS.—For Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburgh, Chicago and Cincinnati. Sleeping Cars to Pittsburgh and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all Stations to Scranton.

5.25 P. M.—For Somerville and Flemington.

6 P. M.—For Easton and intermediate stations.

7.00 P. M.—For Somerville.

8.00 P. M.—WESTERN EXPRESS TRAIN.—For Easton, Allentown, Reading, Harrisburg, Pittsburgh and the West—connects at Harrisburg with train for Williamsport, Erie, &c.

8.10 P. M.—EMIGRANT—Stopping only at principal stations.

9.00 P. M.—For Plainfield.

11.45 P. M.—For Plainfield on Wednesdays and Saturdays only.

Sleeping cars through from Jersey City to Pittsburgh every evening.

Trains leave for Elizabeth at 5.45, 6.30, 6.55, 7,15, 8.15, 8.30, 9.00, 9.20, 10.30, 11.40 A. M., 12.00 M., 1.00, 2.00, 3.00, 3.30, 3.45, 4.15, 4.30, 4.45, 5.10, 5.25, 5.45, 6.00, 6.25, 7.00, 7.45, 8.00, 8.10, 9.00, 9.45, 10 45, 11.50 P. M.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty street, N. Y.; at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich street, and at the principal hotels.

R. E. RICKER, Superintendent.
H. P. BALDWIN, Gen. Pass. Agent.

RAILROADS.

MORRIS AND ESSEX RAILROAD.—DELAWARE, LACKAWANNA AND WESTERN RAILROAD CO. (Lessees). Depots in New York, foot of Barclay street and foot of Christopher street.

Summer arrangements, commencing MONDAY, May 10, 1869.

8.00 A. M.—MAIL TRAIN.—Connecting at Denville with Boonton Branch, at Dover with Chester Branch, at Waterloo with the Sussex Railroad for Andover and Newton, at Washington with the D. L. and W. Railroad for Water Gap, Stroudsburg, Scranton, and Great Bend, and all points on the Lackawanna and Bloomsburg, and Delaware and Hudson River Railroad; at Easton with the Lehigh and Susquehanna Railroad for Bethlehem, Allentown, Mauch Chunk, and Wilkesbarre.

11.30 A. M.—LEHIGH VALLEY EXPRESS—Stops at Newark, Morristown, Dover, Hackettstown, Washington, Phillipsburg, and Easton; connects at Phillipsburg with Bel., Del. Railroad for Belvidere, &c., and at Easton with L. V. R. R. for Bethelehem, Allentown, Mauch Chunk, and Wilkesbarre.

4.00 P. M.—SCRANTON EXPRESS—Connects at Washington with the D. L. & W. R. R. for Water Gap, Stroudsburg, and Scranton at Dover with Chester Railroad, and at Waterloo with Sussex Railroad.

6 30 A. M. and 4.30 P. M.—To Summit and intermediate stations.

6.30, 7.30, 9,30 A. M., and 1.00, 3.40, 5.30, 8.45, 11.45 P. M.—To South Orange and intermediate stations.

11.40 A. M., 3.00 and 6.30 P. M.—To Morristown and intermediate stations.

5.10 P. M.—Morristown Express.

For Newark at 6.30, 7.30, 8.00, 8.30, 9.30, 10.30, 11.00, 11.30, 11.40, A. M., 1.00, 2.00, 3.00, 3.30, 3.40, 3.50, 4.00, 4.30, 5.00, 5.10, 6.10, 6.30, 7.45, 8.45, and 11.45 P. M.

For Bloomfield and Montclair—At 8 30, 11.00 A. M.; 2.00, 3.50, 5,00 and 6.10 P. M.

S. SCHOCH, Assistant Superintendent,
R. A. HENRY, G. P. Agent.

NEW JERSEY RAILROAD—For PHILADELPHIA.

Via Kensington, *6.30 p. m.; on Sundays, via West Philadelphia.

Via Camden, 1 p. m. and 4 p. m.

Via West Philadelphia, 7 a. m., 8.40 a. m., 10 a. m., 12.30 p. m., 5 p. m., *9 p. m., 9.20 p. m., and 12 night.

For Baltimore and Washington—8.40 a. m., 12.30 p. m., *9.26 p. m.

For South and Southwest—8.40 a. m., and *9.20 p. m.

FOR THE WEST.

8.40 a. m., 12.30 p. m., 5 p. m., *9 p. m., and *9.20 p. m.

The 8.40 a. m., and *9 p. m. trains through, with but one change, to Cincinnati and Chicago.

Silver Palace Sleeping Cars attached to the 5 p. m. train run through to Cincinnati and Chicago without change, daily. (Saturdays and Sundays excepted); and on those days to the 9 p. m. train. This is the only line running through cars to Chicago by evening lines.

TICKET OFFICE FOOT OF CORTLANDT ST.

Tickets for sale in Reclining Chair cars can be obtained at foot of Courtland street and 944 Broadway.

May 10th, 1869. F. W. JACKSON,
*Daily. General Superintendent.

MISCELLANEOUS.

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COMPETITION WITH COALS from PENNSYLVANIA.

CHEAP FUEL

For Districts where Wood is Scarce.

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Edwin J. Hulbert, Secretary,

To whom all communications may be addressed.

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TO MILL-OWNERS and Country Manufacturers; to be driven by horse-power.

TO RAILROAD COMPANIES, Smelting Works, Iron Furnaces, and large Manufacturing Companies; to be operated by steam power—40 horse power being capable of manufacturing 100 tons per day.

To Farmers and others, we will sell small machines for cash, giving a full and sufficient guarantee of performance as above stated.

To Railroad Companies and Manufacturers, we will sell machines at manufacturers' billed prices, they also to pay for transportation and erection; will take for patent and method a proportion of THEIR NET PROFITS, guaranteeing them against loss, and allowing 10 per cent for interest in the capital thus employed (which in case shall exceed $15,000 in order to produce 75 tons per day.)

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EDWIN J. HULBERT, Secretary.

The operation of our machinery may be examined by application to WM. SELLEW, Esq., Superintendent, at the Works on the Etna-bog, 3 miles north of Meriden, Conn., on line of Hartford and New Haven Railroad.

July 6-tf

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☞ For sale also in New York, at the Office of THE ENGINEERING AND MINING JOURNAL, wholesale and retail. mh13-tf

PEOPLE'S LINE FOR ALBANY.—THE largest and most magnificent river steamers in the world—The ST. JOHN, DREW and DEAN RICHMOND.

One of the above steamers will leave Pier No. 41, North River, EVERY AFTERNOON (Sundays excepted) at 6 o'clock, arriving at Albany in time to connect with railroad trains West and North. Returning, leave the Albany Steamboat Landing at 7 o'clock P. M., or on the arrival of connecting trains from the West and North. Through tickets can be obtained at the office on the wharf, and baggage checked to its destination. Freight received until the hour of departure.

PUBLICATIONS.

THE MINES OF COLORADO:

BY CVANDO J. HOLLISTER.

LATE EDITOR AND PROPRIETOR OF "THE COLORADO MINING JOURNAL."

The approaching completion of two lines of railway between the Mississippi Valley and the Rocky Mountains, will mark an era in the history of the nearer of the mining Territories—Colorado. It will infuse new life into mining, by giving safe, quick, and reliable communication, reducing freights and risks, thus cheapening supplies and furnishing a most necessary competition in the labor market, under which the production of the precious metals will be largely increased, and the value and importance of property of all kinds will be proportionally enhanced. This cannot fail to arrest the attention of capitalists who are interested in Colorado gold and silver stocks, or are thinking of becoming so. It will be of yet more benefit to that large class whose capital is their muscle, because it will make accessible to them a new and large tract of virgin land, which, though far West, is still on the World's great highway, and therefore in no sense of the word in the backwoods. This region has a pleasant and healthy climate, and while its soil is unsurpassed in strength by that of the prairie States, it has a superior market in the adjoining mines. It most eloquently invites settlement and improvement. It will also give the Summer tourist a choice between the West and the East. It is not hazarding much to say that the Rocky Mountains offer the most delightful Summer resort of the New if not of the Old World. The climate is cool and bracing, the air deliciously pure and soft, the scenery both grand and beautiful, the forests full of game and the streams of trout, with hot mineral springs of high medicinal value boiling up at the root of every shade tree in the sequestered parks. The annexation of the Rocky Mountains to the Union by railways will open a new world to science, a new field of adventure to money and muscle, a new and pleasant place of Summer resort to people of leisure.

To meet the growing want of definite information concerning that interesting country, this book is put forth. It treats of the discovery of gold and settlement of the country, its geography, chorography, geology mineralogy, and agriculture, its early efforts at self government, and the progress and present condition of mining industry, including descriptive list of mining companies, principal improved mines, mills, machinery, and methods of treating ore—in short, it undertakes to give, as concisely and precisely as possible, and without any pretension, all that is known on the subject.

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THE success which has attended our efforts to provide a first-class Monthly, devoted to the interests of the industrial classes, has far exceeded our most sanguine anticipations. THE MANUFACTURER AND BUILDER has been received with favor by every class of the community. Manufacturers have taken it for the information which it gives in regard to the improved processes in which they are interested; mechanics have taken it for the instruction which it conveys in regard to matters pertaining to special arts and trades; professional and literary men have taken it for the information which it conveys in regard to the progress of the industrial arts; people, in general, have taken it because it contains much pleasant reading matter for the family circle. That all these classes have been right in their estimate of this journal, will be evident to any one who will read the Table of Contents which we here append. When we state that these articles are almost all derived from original and authoritative sources, it will be seen that we have presented a body of **PRACTICAL, THOROUGH, AND RELIABLE INFORMATION,** such as can nowhere else be obtained for the sum charged for a year's subscription to THE MANUFACTURER AND BUILDER.

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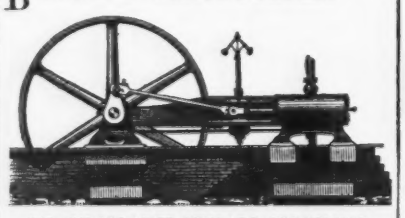

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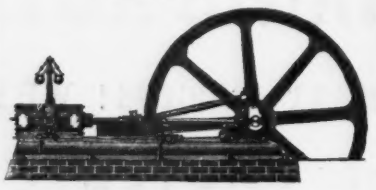

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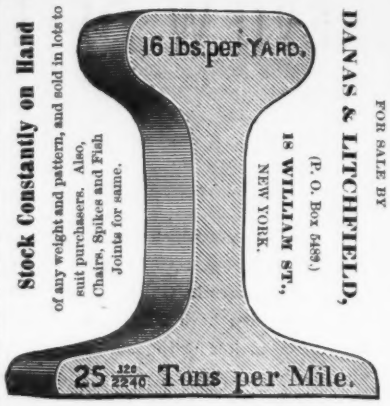

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